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WHATEVER IS, WAS.

"*The assertion of Self-existence is the denial of causation; and when we deny causation we also deny commencement.*"—JOHN FISKE—"COSMIC PHILOSOPHY."

"*It is clear that by Self-existence we especially mean, an existence independent of any other—not produced by any other.*" * * * "*Self-existence, therefore, necessarily means an existence without a beginning.*"—HERBERT SPENCER—"FIRST PRINCIPLES."

"*Sound philosophy should not circumscribe within the limits of human reason the sphere of possibility.*"—BALMEZ—"FUNDAMENTAL PHILOSOPHY."

"*Perhaps there are beings so organized that their sensations are wholly opposed to ours, and what is true for us is false for them, and reciprocally.*"—LAMENNAIS—"*Essai sur l'Indifférence.*"

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WHATEVER IS, WAS.

IN NATURE, THERE ARE NO SUCH THINGS AS CAUSE, EFFECT, GENERATION, GROWTH, NOR DEATH.—NO TIME, NO PAST, NO FUTURE.—LOGICAL CONCLUSIONS DEDUCED FROM THE THEORY.—THE SELF-EXISTENCE OF THE UNIVERSE.

ALSO,

A CRITICAL EXAMINATION INTO THE FOUNDATION ON WHICH RESTS THE PHILOSOPHY OF HERBERT SPENCER, AND THE THEORIES OF CHARLES DARWIN.

TOGETHER

WITH A NEW THEORY FOR THE ORIGIN OF THE WORLD.—FOR ALL FORMS, ORGANIC AND INORGANIC.—ALSO, THE NATURAL CAUSE OF THE CONTINUING EXISTENCE OF ALL LIVING THINGS, AND SPECIES OF THINGS.

AND

THE FINDING OF THE SUPPOSED "MISSING LINK."

BY

GEO. A. YOUNG.

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TO

JOSEPH GREEN EASTLAND,

IN ADMIRATION

OF WHOSE VIRTUES, HONOR AND INTEGRITY, WHICH COMMAND THE RESPECT, AND WHOSE PROVERBIAL GENEROSITY ENDEARS HIM TO ALL WHO KNOW HIM.

IN REMEMBRANCE

OF A LONG AND UNBROKEN FRIENDSHIP.

IN GRATITUDE

FOR CONTINUAL KINDNESSES SHOWN TO ME,
FOR A TRUST IN ME WHICH HAS NEVER WAVERED,
AND A PROMPT, EFFECTUAL SUCCOR IN TIMES OF TRIAL,
THIS BOOK IS AFFECTIONATELY DEDICATED, BY THE

AUTHOR.

January 15th, 1887.

"*The absolute commencement of organic life on the globe I distinctly deny. The affirmation of Universal Evolution is in itself the negation of an Absolute commencement of Anything.*"—HERBERT SPENCER'S "LETTER TO THE NORTH AMERICAN REVIEW."

"*The belief that animals so distinct as a monkey or an elephant, a humming-bird, a snake, a frog, fish, etc., could all have sprung from the same parents, will appear monstrous to those who have not attended to the recent progress of natural history.*"—DARWIN'S "DESCENT OF MAN."

PREFACE.

We may be permitted to say: That this book will be best appreciated by those who have some knowledge of philosophic literature; but no previous reading is necessary to the understanding of the argument or the passing of judgment upon its conclusions.

As man is endowed with natural logic, we have endeavored to write in such a manner, that those who may have read but little, or not any philosophy, will, we think, be able to follow our reasonings to their logical conclusions.

Our purpose in using the fictitious personages, Professors Jubal, Credo, Yag, and preacher Congo, will become obvious to our readers.

The three most commonly accepted theories which philosophers have adopted in order to solve the mysterious problem—the origin of the Universe—are:

First. That it is Self-made. [*Pantheism.*]

Second. That it is Self-existent. [*Atheism.*]

Third. That it is Created by an external agency or Supreme Intelligence. [*Spiritualism.*]

In our examination of these theories, we have not entered the sanctuary; nor discussed any religious dogmas. We have taken the Mosaic account of Creation, as we have the cosmogonies of Epicurus, Kant, Laplace and others, as their theories, to account for the origin of the visible universe, and endeavored to logically and philosophically analyze them; in order to see which might be the most probable.

We have, more particularly, examined the foundation on which rests the philosophy of Herbert Spencer. Also, the theories of Charles Darwin, and endeavored to see if the philosophical structures which they have built thereon, can stand the test of a logical analysis.

We have presented to our readers a new theory for the Origin or formation of the World and Species; and, for this purpose, have accepted the hypothesis: That first, before the worlds were formed, there existed a chaos; a mass of primordial matter

termed Atoms. We have not inquired into the primal cause of these, but, assisted by the science of molecular physics, have built up the structure of our theory, and endeavored to show the secondary or natural cause of the origin of all forms, organic and inorganic. Also, of the continuing existence of all living things, and species of things.

Notwithstanding it is the scientific faith, that the laws of nature are immutable, and all science is based on this faith, we claim to have proved, that, in the natural order, immutability is impossible, *absoluta;* and, with this exception, have endeavored to prove, that, with Nature, nothing is impossible.

The attribute of immutability not being law, nor subject to law, we have endeavored to show the origin, the birth, the life, the death, and the annihilation of what is commonly called Law.

Whether or not we have found the supposed "Missing Link," we have, at least, sought for it where it can be found only—namely, in the head—in some creature which adapts its reasoning faculties to special cases which result in special actions being instituted; and thus perform what we see involved in the process of man's mental powers; these being, as we may say, the materials only out of which can be made the link, which, on the theory of Universal Evolution, completes the chain, that reaches across the great chasm which yawns between the mammal, man, and all other living organisms; connecting him with the primordial animalcule; and, back of this, as a part of an assumed infinite mass of matter, existing in a nebulous or in a gaseous condition.

We claim to have found this creature. In fact, it has never been lost, but some natural philosophers, in their zeal and determination to find it in the Quadrumana or monkey, have overlooked it.

By some, no doubt, it will be objected, that satire and humor are out of place in a philosophic work. Should this objection be based on the grounds of precedent, it will be legitimate, but we have yet to learn, that an author is bound by precedent; restricted by any arbitrary rule, or compelled to adopt any particular style in which to express his thoughts. Should we be wrong in this—in extenuation of our fault—we will say:

That when we commenced building our literary edifice, we had in our mind's eye, no definite design, no plan, nor adopted any particular style. Our materials were much scattered; but as they came to us, we built. If it were a metaphysical brick, we laid it; if a logical nail, we drove it; stuccoing our work as we proceeded, with the mortar of satire and humor.

In fact, from the time when Professor Jubal first introduced himself to his class of young gentlemen, we had no idea what he was going to say; and when he laid aside his philosophical chain, and attempted to become humorous and satirical, we were as much surprised as our readers may be; and, in our mind, said to him, that, among other episodes, when he read the two lectures of Bob Bangyoursoul; the letter from Persistent Energy to Mr. Spencer; related the proceedings of the Caucus of philosophers, and his Astronomical discoveries, he became satirically-absurd, as these were out of place in philosophic lectures.

We also took Professor Credo to task, for relating the sayings of preacher Congo. But, having no control over the minds of these gentlemen—we merely acting as their amanuensis—were compelled, in words, to dot down their ideas, as they came to us. And, while during their graver remarks, the class of young gentlemen were serious and thoughtful, they frequently smiled at their humor; we, never moved a muscle.

By some, it may be thought, that much could be eliminated from our book, to its benefit; while others, more hypercritical, may think, that if the matter contained between the title page and the one on which is written the words, "The End," were eliminated, our work would defy adverse criticism. Be this as it may. As it came to us, so give we it to you. And if, during its perusal, should, perchance, any of our readers gain some knowledge and instruction, or should it awaken in any a desire to pursue further our inquiries, in order to solve the triune problem, What am I? Whence came I? Whither am I going? Or should it give to any but a modicum of the pleasure it has given us in writing it, then, we have not written in vain.

GEO. A. YOUNG.

San Francisco, January 15th, 1887.

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LECTURE I.

PROFESSOR JUBAL INTRODUCES HIMSELF TO A CLASS OF YOUNG GENTLEMEN AND LECTURES ON PHILOSOPHY.

Young Gentlemen: As during the course of our lectures we shall have to deal with causes and effects, and endeavor to trace all phenomena in nature to some one or many of her laws; and, as philosophers tell us, that in the civilized social state, there has been evolved a phenomenon known as the law of politeness. We will, without at present examining into its cause, comply with its requirements by introducing ourselves to you. Gentlemen, our name is PAUL JUBAL.

One of the axioms of philosophy is "there can be no effect without a cause—no cause without an effect." It follows, therefore, that there can be no effect without the existence of some power or agent which causes, which power must exist prior to the effect. So we will explain to you the cause, of which probably you may not be aware, which produced the effect of our presence among you.

It appears that for some length of time, the Faculty of this College has had grave doubts as to the truth of the Bunsbyian Philosophy, *i. e.:* Which Way? If so be, why not? Therefore."

And notwithstanding the earnest support of Mr. Dickens, the Faculty has removed Prof. Bunsby and invited your humble servant to fill the vacancy. The Faculty being aware that philosophy is a flexible science; that its elasticity is of such a nature that it can be molded, stretched, and twisted into any shape desired; and being also aware, that in every age of the world philosophers have molded, shaped and twisted it. The Faculty, therefore, know that philosophy is a progressive science. And as the doctrine "Which Way? If so be, why not? Therefore," not being sufficiently elastic to be molded into the forms required by modern thought, even should the "bearin's of the philosophical observations lie in the application on them," is

the primal cause why the Faculty has dismissed your old teacher, Prof. Bunsby.

Young Gentlemen, although it affords us great pleasure to become your teacher, and endeavor to instruct you in the fundamental principles of what will hereafter be known as the "Jubal Philosophy," yet in justice to your old teacher, we will say: We are convinced that Prof. Bunsby, like many other philosophers, has not been rightly understood. The fact is, that his philosophy is too transcendental to be comprehended without considerable metaphysical knowledge having been previously acquired. He was too abrupt in stating the principles of his philosophy and the conclusions drawn therefrom. He should have led to them by degrees, and not depended too much on the intelligence and logical acumen of his scholars. Yet, he was wise in presenting his principles in the interrogative form, thus enabling him to ask in two questions what would require volumes for any of us philosophers to answer. Besides this, we shall show you, as we proceed, that no philosopher can make one move or advance one step towards proving or even stating his hypothesis without adopting Prof. Bunsby's philosophy. We can afford to say this much to the credit of your old teacher.

During the course of our lectures we shall ask for your close attention, as the road upon which we shall travel is full of taking-for-granted starting points, ways which lead into vicious circles; illogical pitfalls; metaphysical quagmires, and swamps of "If so be's," whose exhalations rise, like *ignes fatui*, on every hand, alluring the unwary to their mental destruction. Upon the high-road stands Dogmatism, which, with pointing finger proclaims aloud to each traveler the only way by which to reach the temple of true philosophy; while Agnosticism, as it crouches by the way-side, whispers in the ear of each passer by: "Believe nothing but appearances." Many are the wise and learned, who in their despair of ever reaching this temple, have fallen by the way-side, and whose literary bones lie bleaching in the sun of Speculation, evidencing their temerity. Therefore, as you travel along this road, you will need a guide who has already been over the route with, as we may say, the pocket compass of previous research.

In the first place, gentlemen, we must understand what is the meaning of philosophy. Philosophy is a system; a science for investigating or searching into the nature and reason of things; to enquire into causes and effects; the investigation of the principles on which all knowledge ultimately rests. Thus it is, in this investigation, that we hypothesize and from theories.

An hypothesis is a guess or supposition made concerning the cause of some fact with a view to trying experiments to discover the truth.

A theory is a speculation, a plan, a system, subsisting only in the mind; a supposition, a principle of whose existence there is no proof from experience; a proposed explanation of any phenomenon in nature.

Therefore, philosophy is a science by which we try to find out and explain the why of things we know but little about, and most certainly never shall know all about on this earth. Philosophy is divided into many kinds, but we shall confine ourselves chiefly to natural philosophy, or that which treats of phenomena and laws of the material world; of the properties of natural bodies and their actions on each other.

The origin of philosophy among mankind is, that man, being the only rational animal on the earth; the only one which asks questions and who can laugh if they are not correctly answered; also, the only animal which blushes, and is, sometimes, ashamed of himself. We do not include every one in this last remark. Man; he looks around; he sees himself and others; he looks down and sees the earth; he looks up and sees the sun, the moon, and the stars, and he wonders; he becomes curious; he wants to know; so he asks: "How did all these things which I see come to be? Where did they come from? Were they made? Did they make themselves, or did they self-exist. Did they ever have a beginning, and will they ever have an end? What am I? Whence came I? Whither am I going?"

So, man, in his efforts to get an answer to these questions, gets to supposing, theorizing, hypothesizing and thus becomes a philosopher.

Philosophy has been taught and learned far, far back in the dim past. When the ages were young; when they were of stone, of bronze, of iron and of gold, when man lived in caves and

was a mighty hunter in the forests of Assyria, he was wondering and philosophizing. Some few fragments of his supposed discoveries have come down to us from those long past ages, preserved from the destroying hand of time by the hieroglyphic, papyrus and parchment fossils found in the different, what we may term, Historical strata. These fossils are such strong evidences of the truth of what we will name, Philosophical Palentology, that their record enables us to go very far back in time and trace the science from its germ; from its smallest beginnings—so small as to be scarcely comprehensively visible when found, as they have been in the strata of Hypothesis, Theory, and Taking-for-granted. So, during the course of our lectures, we shall dig deep down into these strata; into those of Dogmatism and Contradiction; gather the fossils which were deposited in them during the Supposing period, and endeavor to show you how from these small and imperfect beginnings philosophy has been evolved. Also, how through successive periods it has so modified its structure, till now, in this enlightened age, it has reached its present perfection, thus enabling it to point out the road which leads to universal scepticism in matters of faith. We shall also explain to you the cause why out of the great number of philosophical fossils preserved in these strata, there has never been found any two alike. So from this, as Prof. Helmholtz says: "It would appear as if nature delighted in contradictions."

Young gentlemen, what we call the live languages are so common, poor and plain in their construction; so easily understood; not broad nor deep enough to enable us to swim and dive in the great hypothetical ocean of philosophy, that we shall, sometimes, be compelled to call up the dead ones. So fearing that you may not be well up in your lexicon, we will interpret what dead words we may use as we go along.

The subject for our first lecture will be *Natus mundi*, or the birth of the world. *Ninquam aluid natura, aluid sapientia dicit*, is a dead maxim, which interpreted is, "True philosophy is never at variance with nature."

When by philosophizing we find out what nature *is*, then, as we may say, that dead maxim will become alive, as then, there will be no variance among us philosophers. As it is now, no

two among us can agree upon what nature *is*; what are the essences of things, nor what is the Ultimate of Ultimates. The cause of our disagreement being, no doubt, that in nature no two things are exactly alike—Hence variance.

Gentlemen, we will commence at the *alpha* or the beginning, and travel along our difficult road until we arrive at *omega*, or the end. We, therefore, will have to commence before the birth of this world; be at the birth, and follow it through Childhood, Youth, Manhood, Old age to Death. During our journey we shall take occasion to express our opinion of the actions of some people—including ourselves—who are now living upon it, and should any think that we had them in our mind, it will be the best evidence that we have told the truth. We shall then, after this, follow the ashes of this world's dissolution till they re-aggregate and form a new world. And as Dissolution forms the complement of Evolution, and will undo what Evolution has done, we shall endeavor to show you how new laws will be evolved which will necessitate a reverse distribution of primordial matter; that the new world and everything in it and on it will be governed by the law of Reversal, and that matter will enter into new and novel relations, thus producing new and wonderful effects. In other words, Everything will be contrary to our present order of things.

In addition to our own theory, we shall present to you

Three Theories for the Origin of the Universe.

We have already stated that philosophy is a system or science for searching into the reason of things; to enquire into and endeavor to discover the origin or ultimate cause of things. In their efforts to do this, philosophers have become divided upon about three theories as to the origin of the Universe, namely:—

First.—That it is Self-created. [*Pantheism.*]

Second.—That it is Self-existent. [*Atheism.*]

Third.—That it is Created by an External agency or Supreme Intelligence. [*Spiritualism.*]

The school of philosophy which has adopted the second, or the theory of the Self-existence of the material universe, teaches: That in the No-beginning, before the worlds were form-

ed, there existed Something which was Everything; that what we call the Universe, or so-called space, is filled up equally full of this Something; that this Something always *was* and will always *be;* that there is just so much of this Something, and there can never be any more nor any less. This Something has been termed "Primordial Matter." Of what it was and is composed there is a great difference of opinion among philosophers. The most commonly accepted theory is, that it is composed of atoms. So, starting with the atoms, philosophers, each according to his own theory as in what way these atoms formed the solid-bodies in the universe, go on and say: That once in the unthinkable past, these atoms which filled the whole so-called space of the Universe, commenced and did something. Commenced moving, revolving, segregating and aggregating through a force; commenced forming molecules by chemical combination; commenced acting in accordance with a pre-existing harmony; commenced forming into vortex-rings; commenced revolving and producing heat, and at last to making, or forming the visible worlds and everything in and on them by and through Law—laws which prior to each event were non-existent.

Further. Philosophers go on and say: That in these molecules there exists the *potential*, or possible; that they form everything which has existed or ever will exist; that they were never born and will never die, they had no progenitors and leave no offspring; that they are different from each other, and are assorted into sets. One set made the sun; another the moon; another the earth, and others the stars. One set made the fire and another the water. Different sets made the rocks, the minerals and the chemicals. One set made, and now makes the fish; another the flesh, and another the bones. One set made the grass and others the trees, etc., etc. In fact, we shall find that the whole fabric of natural philosophy is built upon the MOLECULE; that it is the be-all and do-all in nature; that nothing animate or inanimate ever was or can be formed, except by the aggregation of the particular and peculiar molecules, intended, as we may say, by nature from a No-beginning to form each particular thing or entity. And further, that no living thing can be born or come into real or actual existence until its particular and exact, what we call, *time*, comes.

In the East at the early dawn of the morning of the world—ages before the Vedas were written—ages before the pyramids reared their hoary heads, and before Greece was, Man, as we have already said, had been philosophizing, and from their fossilized records found in the historical strata up to Prof. Bunsby, we find there has been no agreement. Therefore, you must not be surprised to find us differing with other philosophers on some subjects. Still, however much we may differ upon some points, we have settled among us more advanced modern philosophers, that of all the theories of the origin of the material universe, the most improbable one is, that it was created by an external agency, and we agree with Mr. Spencer, who says: "The theory of the Self-existence of the Universe is the one commonly accepted and commonly supposed to be satisfactory." By adopting this theory we avoid having to admit the Mosaic account of creation by a Supreme Intelligence. Were we to admit this, we should not be now lecturing before you. We should, probably, be either a book-agent or trying to sell sewing-machines, and sooner than engage in these pursuits we would rather teach the Self-creation theory. But as long as nature keeps her secrets we shall not lack employment: because the philosopher who supposes and guesses the most, is considered to be the best philosopher. In fact, we have laid its foundation on suppositions, and erected guessing into a science; and as to believing, Prof. Huxley says: "In science—scepticism is a duty."

Some of the Philosophical Subjects on Which Prof. Jubal Will Treat During This Lecture.

Young gentlemen, we shall have nothing to say about the Self-creation theory, and would have left that of Creation by a Supreme Intelligence take care of itself, were it not, that the Mosaic account of the beginning of things is held and taught by so large a body of Christian Philosophers, and as the theory of Self-existence is in direct antagonism to that of creation, we thought that you may derive a benefit from hearing what can be said in defence of that theory. So, for this purpose, we have invited your Professor of Mathematics, Prof. Credo, who is also a Christian Philosopher, to address you occasionally. But we shall confine ourselves to the theory of Self-existence or No-be-

ginning of things, and endeavor to show, that the logical conclusions deduced therefrom must be: that in nature, there are no such things as Cause, Effect, Generation, Growth, Death nor Impossibility; neither Time, Past nor Future; but an Eternal, ever-present Now, or, "Whatever Is always Was." These logical conclusions we shall not fully prove until we come to examining the foundation upon which rests the several theories of the origin of the world, life and species.

We shall also present to you a theory of our own, which we may be allowed to call the "Jubal Theory" for the origin of the world; the various forms and the continuing existence of all things and species of things, and compare its philosophical probability with the theory of Evolution as taught by some modern philosophers. In this connection we would here remark, that we are astonished to find such clear and logical minds as those of Messrs. Darwin, Wallace, Haeckel, Vogt, Spencer and others, should not have discovered, or at least more clearly explained, the logical conclusions which must be ultimately arrived at from their own premises. For we shall find that while we may rely upon what philosophers say, it is sometimes necessary to know what they mean. We shall conclude our lectures with finding the "Missíng-link," or rather in endeavoring to show that it has never been lost, but that evolution philosophers in their zeal to find this link in the Quadrumana or monkey, have overlooked it.

Having given you the foundation, the principles upon which philosophy rests, we will, in the first place, show you in what way philosophers have used those principles and built up that part of philosophy called Cosmogony, or the origin of the visible universe. And when we examine the past, we shall find that we modern philosophers have not added one single brick to the foundation of the philosophical edifice which was built over two thousand years ago by the old Pagan philosophers. It is true that we have put many theoretical bricks on top, and plastered them over with some new orthographical mortar. And among the last and most prominent bricks which have been laid on that edifice are those of Mr. Herbert Spencer's "Synthetic Philosophy"—which has gained for him the title of "Our Great Philosopher"—and those of Mr. Darwin's "Descent" and "Natu-

ral Selection, or the Survival of the Fittest," of which, Prof. Ernst Haeckel says: "Mr. Darwin's discoveries rise higher than the discovery of gravity by Newton." Whether or not this be so, it is certain, had not Mr. Spencer's philosophical mind, conceived and brought forth as an Ultimate of Ultimates, the brick, Force, which, including its quality of persistence, Mr. Spencer says: "constitutes the basis of all science:" Mr. Darwin could never have gotten his bricks up on that edifice.

What is the Meaning of Self-Existence?

Gentlemen, before proceeding further, it is necessary that you should understand what is the exact meaning of *Self-existence*, and we cannot do better than to let Prof. John Fisk and Mr. Spencer tell you. Prof. Fisk in his Cosmic Philosophy, says:—

"The assertion of Self-existence is the denial of causation; and when we deny causation we also deny commencement."

Mr. Spencer, in his "First Principles," says: "It is clear that by *Self-existence* we especially mean, an existence independent of any other—not produced by any other; the assertion of Self-existence is simply a denial of creation.

"In thus excluding the idea of any antecedent cause, we necessarily exclude the idea of a beginning; for, if we admit the idea of a beginning—to admit that there was a time when the existenee had not commenced—is to admit that its commencement was determined by something, or was caused; which is a contradiction. Self-existence, therefore, necessarily means existence *without a beginning*."

In a letter to the *North American Rev*[illegible]her says: "The absolute *commencement* o[illegible] I distinctly deny. The affirmation[illegible] itself *the negation of an absolute*[illegible]

Now, as our whole argume[illegible] Self-existence, we desire that[illegible] ses, viz: *The denial of c*[illegible] *ment of anything*. As S[illegible] tion aud means a No-b[illegible] term *No-beginning*, as on[illegible] its meaning.

The Cosmogonies

The philosopher who imagin[illegible] Something was which filled th[illegible]

Abdera, who lived about 500 years before our era. Democritus was the immortal founder of the "Atomic Theory." It was he who laid the first brick in the foundation of the philosophical edifice which was built 200 years afterwards by Epicurus, who taught the existence of matter and motion. That all space was filled with molecules of matter in a state of rapid motion in every direction. That these molecules of matter were subject to what we call gravity, and endowed with properties or forces. One combination of molecules gave rise to unorganized; another to organized matter; another to life, and another to mind. That from these combinations, guided by unintelligent, physical laws, all the organisms of plants and animals have arisen. From these combinations also, all phenomena, life, instinct, and intelligence in this world are produced.

These are the principles which are cut in the bricks and laid in the edifice of Cosmic philosophy over 2,000 years ago by Epicurus. So upon these principles the great German philosopher, Emanuel Kant, founds his Cosmogony, which is: That the whole universe, inconceivable ages ago, consisted of a *gaseous chaos.* All the substances which are found at present separated on the earth, and other bodies of the universe, in different conditions of density, in the solid, semi-fluid, liquid, and elastic fluid or gaseous states of aggregation—originally constituted together one single homogeneous mass, *equally filling up the* [illegible] *of the Universe,* which in consequence of an [illegible] temperature, was in an exceedingly [illegible] The millions of bodies now in [illegible] They originated only in con- [illegible]ion or rotation. Thus arose [illegible] nebula into a number of [illegible]me more and more con- [illegible]

[illegible]ic gaseous, or nebulous [illegible] around a common cen- [illegible]ulous ball itself, like all [illegible]ory movement, assumed a [illegible]n.

[illegible] of the rotating bodies of the [illegible]ncreasing refrigeration and con-

densation, into a fiery fluid or molten state of aggregation. Heat was generated, and the rotating suns, planets, and moons, soon changed into glowing balls of fire like gigantic drops of melted metal, which emitted light and heat. By loss of heat, the melted mass on the surface of these fiery fluid balls became further condensed, and there arose a thin, firm crust, which enclosed a fiery fluid nucleus. Thus arose our mother, Earth.

We stop here a moment, gentlemen, for the purpose of justifying what we have already stated in defense of your old teacher, namely: that no philosopher can advance one step toward proving or even stating his theory without adopting Prof. Bunsby's principles. Observe the Bunsbyian philosophy contained in Kant's cosmological gas-theory! viz: "Which way? If so be" there was a gaseous chaos filled up eqally full of a homogeneous mass of matter, and it commenced rotating, condensing, etc., etc. "Why not" suns, moons, and planets, when they get hot enough, look like gigantic drops of melted metal? and "Therefore," when one of them refrigerated sufficiently to become cold, why should there not arise our mother, Earth? But aside from this, you must remember that all this came about through law, through unintelligently instituted natural laws, and and without this kind of laws and Prof. Bunsby's principles we should have no foundation upon which to rest our philosophy; for "If so be, why not?" lies at its very base. This is clearly shown by Prof. Haeckel, who says: "The fundamental principle of philosophy is, that everything in what we call Nature is governed by law—laws inherent in Nature, else we would have to admit an external agent, whose intelligence impressed upon her the laws by which she is governed." And, speaking of Kant's gas-theory, the Professor says: "A great and unsolved difficulty lies in the fact that Kant's Cosmological Gas theory furnishes no starting-point at all, in explanation of the *first impulse* which caused the rotary motion in the gas-filled universe." Neither does Prof. Haeckel. Had Kant explained the *primal cause* of things, had he given us the antecedent of the cosmical vapor, he would have got further back than did Prof. Bunsby. There would then be no more "If so be's," and this would bet he death of philosophy. Take *if*, *suppose* and

taking for granted, out of our language, and we philosophers would be out of employment.

The Primal Cause of a First Motion of Matter, According to Herbert Spencer.

When a crisis occurs, or any great calamity befalls a people, there generally arises some individual among them fitted to grapple with and overcome the evil. So, while we philosophers were suffering and groaning under the primal cause difficulty, there arose among us our great Ajax of modern philosophy, Mr. Herbert Spencer, who, with his "New Philosophical System" Key, unlocked the door of the secret store-house of Nature, and dragged forth the *primal cause* which effected the first rotary motion in the gas-filled universe. Mr. Spencer being aware, as he says, that "once the whole universe [space] was filled with molecules in an undifferentiated form, the product of previous evolutions and dissolutions of formal differentiations," he, therefore, knew that the primal cause, be what it may, must be some power which is ultimate. So in seeking for this ultimate he discovered that it was "Force; a mode of an Unknowable Reality," and says:

"Force made the molecules aggregate so as to form the universe, the world, and everything in and on it. The materials were there. It only wanted the necessary combinations."

By discovering force, and how it formed the universe, Mr. Spencer was enabled to say: "Hence, there is no necessity for an external agency to account for it."

Physicus, in his work on "Theism," in support of his Atheism, quotes Mr. Spencer, and says:

"Continuing then, our quotations from Mr. Herbert Spencer's terse and lucid exposition of the nebular theory, we find embodied the doctrine, that self-generation of Nature's laws is a necessary corrollary from the persistence of matter and force. From the time when evolution first began—from the time, before the condensation of the nebula had showed any signs of commencing—every subsequent change or event of evolution was *necessarily bound* to ensue; else, force and matter have not been persistent. How then, it will be asked, did this vast nexus of natural laws ever begin or continue to be? In this way: When the first womb of things was pregnant with all the future, there would probably have been existent not more than one of

the formulæ which we now call natural laws. This one law, of course, would have been the law of gravitation. As fast as matter entered into newly established relations they would *of themselves* give origin to new laws. So throughout the whole process of evolution, as often as matter acquired a hitherto novel state, or one of its old states entered into hitherto novel relations, so often would non-existent or even impossible laws become at once possible and necessary."

We need not stop here to examine the question, and explain to you how that which is non-existent and impossible can become existent and possible, as these subjects will be discussed when we reach our lectures on "No impossibility in nature, and the birth, life, death and annihilation of Law." But having explained to you that Self-existenee means the negation of causation, a denial of commencement, therefore, a No-beginning of things; and having given you some of the ways in which the visible universe has been produced from a homogeneous mass of primordial matter existing in an undifferentiated form; in a gaseous or nebulous condition; also, given you Mr. Spencer's discovery of the agent, Force, which effected these results, we think, that while these quotations are fresh in your memories, it will be better that you should now hear what can be said in opposition to the principles contained in them. We were discussing these quotations, gentlemen, with your Professor of Mathematics, Prof. Credo, and as his argument contained much that will assist you in following us when we come to proving from a premiss of a Self-existent universe, the logical conclusions must be, that in nature there are no such things as cause, effect, time, etc. We desired Prof. Credo to repeat his argument to our class. He kindly consented, and will do so on this occasion.

Prof. Credo Examines the Foundation Upon Which Rests the Philosophy of Herbert Spencer.

Prof. Credo.—My young friends; it affords us great pleasure to have the opportunity of presenting our views in opposition to the Self-existence theory, and shall endeavor to point out to you many insuperable difficulties which philosophers have to overcome before they can produce a visible universe of worlds from a self-existing, self-impelling, homogeneous mass of matter.

Before doing so, however, it will be necessary for us, in a few

words, to explain to you what philosophers understand by Time, Space and Motion. Also, to recall to your minds, that an indespensible criterion of every hypothesis is its exact conformity to established facts; that when any phenomenon presents itself, which is embraced within the scope and affects an hypothesis, the hypothesis is compelled to show that the phenomenon is neither contrary nor inconsistent with the hypothesis. For, as Prof. Huxley says: "If one single fact can be shown to be contrary or inconsistent with an hypothesis, the hypothesis falls to the ground—it is worth nothing. One fact which negatives the hypothesis is worth as much as five hundred for that purpose." We desire that you bear this in mind as we proceed. Now let us understand what we mean, when we say:

Time, Space, Distance, Force and Motion.

First, as to Time. The German Philosopher, Kant, says: "Time is nothing in itself, neither is it anything in things." The learned Spanish priest and philosopher, Balmez, says:

"Time is nothing absolute. There must be a before and an after—that *is* Time. Time is duration. Time has no proper existence, and separated from being, is annihilated. Time commences with mutable things. There is no succession without mutation; where there are no things which succeed each other, there is no *Time*."

According to these definitions, Time then, in the abstract, is a purely logical concept; apart from the existence of contingent being, it neither is, nor can be anything, so far as relates to a *reality*. It is nothing more than the successive changes in finite entities. Hence, if there existed nothing but immutable being, there could be no Time, but an ever-present, Now. If we extract from the notion of time, the ideal, we have simply and only mutation and sequence of finite being. Our divisions of days, and months and years are purely based on the orderly successive changes in celestial bodies.

Now, what do we understand by

Space?

There is a great difference of opinion among philosophers as to what constitutes space. Some define absolute space to be like time, merely a relation, and so far as it is real is the distance

between extended or spaced things. Leibnitz thinks that space is "a relation, an order, not only between existing, but also between possible things as if they existed." Mr. Spencer defines space as "the abstract of all co-existences, or that which is left behind when all the *realities* are absent." According to this definition of Mr. Spencer, space is nothing, for if all *reality* be absent, there is nothing left. The absence of all reality is a vacuum, a *no thing*, not even a relation. Relativity can be predicated only of being, and a vacuum is the absence of being. Balmez says: "Space is nothing real distinguished from the extension of bodies. An extended space which is nothing *real*, is an absurdity." By space, we understand the extension in which we imagine bodies to be placed, or the capacity to contain them to which we attribute none of their qualities except extension. This so-called space, this distance between extended things—bodies—is supposed to be filled with an imponderable, elastic fluid; a material substance, which we call Ether. Space, then, in this sense, is something real; because should we inject a solid body into this space or the distance between bodies, it would displace something. In stating that "the whole universe was filled up equally full, "Kant and Spencer meant to convey the idea, that there were no void space, no limit to matter, and that it eternally existed. We shall examine into this philosophy. Now let us understand what is meant by

MOTION.

Motion is nothing more than the succession of the positions of a body with respect to various points. Absolute motion means nothing more nor less than a change of the position of a body in space. Motion in itself, like space, time, and distance, has no proper existence. Were there no things—bodies—there would be no space. Were there no bodies to succeed each other, there would be no time. Were there no bodies, there would be no distance. Were there no change of position of bodies in space, there would be no motion. Consequently, no one of these can have existence without the existence of all of them. We Christian Philosophers hold, that all these are born of mutable things; that in an immutable state of being, no such conditions can exist.

Now, my young friends and Prof. Jubal, we will take up the Self-existence theory; hear what philosophers have to say; examine the superstructure they have built upon this No-beginning premiss, and see if it can stand the test of a logical analysis. If, as Kant and Mr. Spencer tell us, that the whole space of an infinite universe was once filled up equally full of a single homogeneous, self-existing mass of matter, gas, molecules, or anything else you will, we ask: First. From where could motion come? Second. From where could come a time when motion commenced to do something it was not, from its very essence, compelled to be doing with what is termed Primordial matter? Third. If distance did not always exist in this infinite universe, whence did it come? Fourth. As force is said to be the primal cause of all these phenomena, whence came Force?

Now, as to motion. Motion either always *was* from No-beginning, or it came into existence and had a beginning. If motion did not exist before that taking for granted time *when* "Force made the molecules aggregate; *when* evolution first *began*," or *when* matter began to move, it must at some one of these stages have come into existence. If so, it upsets the theory of its self-existence, or no beginning. That it must have come into existence is proved from the fact that, as we have seen, motion cannot have existence, unless there is a prior existence of bodies to move, for motion is nothing more than a change of bodies in space, and at that hypothetical time [*when*] there were no bodies, nothing but one single homogeneous mass of matter filling the whole infinite universe. Therefore, we say: If motion was not eternally existing in this filled universe, it could not get in. Our reason, and the science of physics tell us, that when a thing is *full*, nothing in it can move, for if there is no space—distance between bodies—neither motion nor anything else can get in, or it would be fuller than full, which is an absurdity.

Lucretius saw this point, and to get over the difficulty says: "There must have been some void-spaces, or there could be no motion; for the atom which first gave way must have some empty space to move in." Now this could not have been the case; because a void space cannot be in that which is full. To be full, it must be full of something. If the distance between

extended things, which we term Space, be now filled with an elastic fluid or anything else, and as not one atom has ever been added to the already self-existing mass, this something, this so-called space must, therefore, have helped fill up this full thing, consequently there could have been no void spaces into which motion could move the atoms. Mr. Spencer also saw this difficulty, and in his effort to get over it, flounders into a worse one by endowing atoms—realities—with the power of absenting themselves and leaving behind them space. He defines "space to be that which is left behind when all *realities* are absent." Absent from what? From nothing? If a *thing* absents itself it must be from some *other thing*, and must first have been present before it can absent itself. The fact of a thing leaving another behind does not annihilate that which is left behind. Suppose these realities were to return. To what would they return? To nothing? We need not enter further into the question here than to say, that if such a possibility could be as, say the existence of Nothing, and a reality could enter it, the reality would become *ipso facto* nothing also. But another difficulty arises here. A reality—being—to absent itself from another being, motion must exist, and during the condition of the atoms of which Lucretius speaks, there existed no motion to compel a single atom to give way.

Mr. Spencer also saw this. He knew that motion could not exist without a change in position of bodies—remember, however infinitesimally small each atom of this mass of matter may have been, each atom is its own individual self, with its own history. Mr. Spencer, therefore, knew that before he could build up a cosmos and by evolution form a universe of worlds without being compelled to admit the existence of an external agency, it was necessary for him to get these atoms or molecules moving. So, for this purpose, he injected force into this filled up universe, and says: "Force made the molecules aggregate so as to form the universe, the world and everything in and on it." Now, as force is not motion, but simply the cause of motion, from where did Mr. Spencer get force? It could not have been outside, for there was no outside, and if it was inside, it was only a part of the filling.

PROF. JUBAL.—You forget, Prof. Credo, that Mr. Spencer does not say, nor mean, that force is a material body, a something which can *fill up*, but that force is an inherent necessary quality of matter, self-existing equally with matter; for Mr. Spencer says:

"Matter and motion, as we know them, are differently conditioned manifestations of force. Force can neither come into existence, nor cease to exist. Each manifestation of force is only an effect of some antecedent force; no matter whether it be an inorganic action, an animal movement, a thought, or a feeling."

Force, therefore, being but a quality of matter, occupies no space and could not have been a part of the filling.

PROF. CREDO.—Even so; force would still constitute a part of the filling. Force, even as a quality or manifestation of matter, is a *some* thing, not a *no* thing. It exists, It acts. The very essence of its nature compels it to act; force without act is nonsense. But we deny that force is an inherent quality of matter. Force is an element existing extrinsic to matter. But never mind this question at present. Even admitting force to be an inherent necessary quality of matter, and by hypothesis never came into existence, but always was; then let us ask, how could force begin to do something at some imaginary time, which, from its very nature, it was not compelled to be always doing from its No-beginning? We suppose, Jubal, you will admit that force could not have done an impossible thing. It could not have made or forced the molecules which filled the universe to aggregate, as they were already aggregated into "one single homogeneous mass equally filling up the *whole space* of the universe." And as to forcing these molecules, as Mr. Spencer says, into a "novel state, or into novel relations, and causing non-existent, or even impossible laws to come into existence." Why! this not only upsets the theory of a No-beginning, but is giving to force more power than we philosophers who believe in Creation ever claimed for the Lord. We do not believe that the Lord can do an impossible thing. We do not believe that even He can do that which involves a contradiction.

My young friends, let us examine a little further how these philosophers have been able to evolve solid worlds out of a mass

of matter which filled up equally full an infinite universe, without first accounting for the difficulty presented by Lucretius, viz: "That there must have been some void spaces or there could be no motion, as the atom which first gave way must have some empty space to move in." Philosophers assert: That there are only just so many atoms in the universe; that not one atom has ever been added nor one taken away from the already existing mass. On the hypothesis of an uncaused infinite universe, this must be so, because nothing can be added nor taken away from that which is infinite; therefore, this universe must have been full of these atoms with no void spaces. Now, as each atom of this matter, however attenuated, could have occupied its own individual portion only of this universe, then, when Force aggregated them into solid bodies, what filled the space, spot, place, or whatever it may be termed, which these atoms or molecules vacated? These portions of the universe would not become Nothing—a vacuum? If this were possible, then, the universe would cease to be full. It is no fuller now, with its myriads of solid worlds, than it was before they were formed. These are now only a part of the filling, and if we could compare finity with infinity, each world would be smaller than an atom, occupying its own portion only of this infinite universe, and no more so than the most infinitesimal atom of matter. The universe is now either full of something, or it is not, and as no two things can occupy the same place at the same time, suppose we dissipate these worlds, which Mr. Spencer says they will be, "into the attenuated matter out of which they arose." To where, in this already filled universe, will go the solid matter of which they are composed? Not into nothing? Should they occupy the position now occupied by other atoms, to where would these go? To get void spaces for the atoms composing these dissipated worlds to occupy, you philosophers would first have to annihilate some other atoms, and your ability to accomplish this equals that of producing solid worlds by aggregating a mass of matter without leaving void the spot, place or position which this mass of matter vacated in order to form these solid worlds. Remember, my young friends, that the theory of Self-existence is a denial of causation, and affirms the No-beginning of anything. Therefore, whatever existed, must have existed

eternally. So let us see from where could come that taking for granted

TIME,

When the contents of Kant's gas-filled universe first *began* to move, also, when Mr. Spencer's force first *began* to aggregate the molecules. Now, no philosopher will attempt to assert that Time can exist in an eternal state of existence. In such a condition there can be no *past*, no *future*, for the idea of an infinite, eternal *was*, must contain the idea of an ever-present *now*. Infinite and eternal being is not limited by time. It *was*, it *is*, and will forever *be* that which it is—eternal. Time *is* because finite, mutable things *are*. Again, on the theory, as this primordial matter is infinite and eternal, then it must necessarily be immutable. If immutable, there can be no change, therefore, no time. If it be mutable then it is not infinite, and if not infinite, it had a beginning; and when *it* began, Time began to *be*, being born, as we have said, of mutable things.

DISTANCE.

Again, Time can have no existence until distance exists. Distance, if we may again be allowed to say, has first to be born. Distance cannot be in anything that is full of one single homegenous mass of matter, whether it be a universe or a quart measure. What we call distance, is that something, that so-called space existing between bodies. Were there but one body in existence there would be no distinction, and without distinction there can be no distance. The word Distance implies a medium between two or more objects. Some philosophers define distance to be the negation of contact. So let us get back to an infinite universe filled up equally full of *one single homogenous* mass of matter, and ask: Where would be the negation of contact, the distinction, the space, the medium between two objects, without which there can be no distance? With Lucretius, should it be replied, that "there must exist some void spaces." Even so, and even admitting that this would account for distance, it would negative the theory of a filled up universe. However, Jubal, whenever and however distance was born, it would, as your friend, Prof. Yag, says, "have to be before that

of time; because before distance existed it did not require any *time* to travel over the road."

Force.

We will now examine into the life, the vital essence of Mr. Spencer's philosophy, "Force," and see whether or not the use he makes of it is consistent with his theory of a No-beginning. Mr. Spencer says:

"Force never came into existence." * * * *
"Force is the Ultimate of Ultimates." * * * *
"Force is a mode of an Unknowable Reality." * * *
"Force made the molecules aggregate so as to form the universe, the world, and everything in and on it."

Now, any thing, any power, agent or cause, which produces some other thing, causes or compels that other thing to act, to do something, must be a some thing which has a prior existence, and possesses the power of causing or producing an effect, because that which it produces, causes to *be*, is only the effect of it, the cause; as according to the axiom, "There can be no effect without a cause." Therefore, if, as Mr. Spencer says: "Force is a mode of an Unknowable Reality," force then, is an element only which the Unknowable Reality used for the purpose of carrying out a mode, a way, a manner, a process, in order to aggregate the molecules. Again, if force had no beginning, or, as Mr. Spencer puts it, "force never came into existence, nor will ever cease to exist," it must, *ipso facto*, have existed instantaneously and simultaneously [rather neither of these, as no such conditions can attach to that which had no beginning] with the Unknowable, which, as stated, used force as a mode to do something at a supposed period in time which it either could not of itself, or did not do from its No-beginning. Force, as an element, is a *vis activa*, and if it never came into existence it must have been eternally acting. A thing begins to act *when* it is. To *be* is to act. To begin to act is to begin to be. Force without act is nonsense. Therefore, if force was not eternally acting, it necessarily follows that it had a beginning. Further, if, as Mr. Spencer says, "Force made the molecules aggregate," there must have been a period in time *when* it began to do so. To make is to act, to do something at some instant in time *when* it began to make. So, if Force made the molecules aggregate,

this would be the *when* force *began* to be; because, to begin to act, is to begin to *be*.

We Christian philosophers hold, that force was made as *vis activa*, and impressed, not *in*, but *on* matter—extrinsic—by He who made it. The *when* of it, was when it was created and *began* to act.

Further. On the theory, these molecules of matter existed eternally, therefore, they were not made, either by Force, or by the Unknowable. Force simply made them aggregate.

We will repeat what Mr. Spencer says:

"Force made the molecules aggregate so as to form the universe, the world and everything in and on it. The materials were there. It only wanted the *necessary combinations*."

We do not think this a very brilliant or original idea in Mr. Spencer, for it requires but little intelligence to comprehend, that if one can get the *materials* and the *necessary combinations*, he can make anything.

Descartes says: "Give me matter and motion and I can make a world." Archimedes only needed the *necessary combinations*—a place whereon to rest his lever—and he could move Descartes' world.

Prof. Huxley gives us to understand, that if he could get the correct proportions of materials—carbon, hydrogen. oxygen and nitrogen—he could combine them; form a complex compound—protoplasm—and call it "Life-matter."

Prof. Haeckel, being more expert, needs but a little carbon, a little spontaneity, and without the most infinitesimal portion of generative essence, and he could produce life. While Mr. Spencer can get along with a few "internal relations to continuously adjust themselves with a few external relations," and he can get up a wriggling.

A few more words, my young friends, about Force, and we will close. Mr. Spencer says, "Force is persistent." We do not doubt this. Persistence is an essence, a quality of force, which, on the theory, it must have possessed from its No-beginning. If it did not, then the quality of persistence must have had an antecedent which was the cause of its beginning. If, as you claim, Jubal, Force, with its persistence is an inherant necessary quality of matter, eternally existing, there is no escaping

the conclusion that they must have been eternally acting, eternally aggregating the molecules. It will not do to shirk this conclusion by ascribing the aggregation of these molecules into solid worlds to a law of evolution. Evolution is not a *cause*, neither is substitution. Law causes nothing, effects nothing. Law merely affects that, for which it is a law. Something must exist prior upon which a law can act, can *a*ffect. Events must exist prior to the law which *a*ffects, not *e*ffects them. Bodies must exist prior to the law of motion. Even admitting that the law of Evolution brought about such changed conditions in this primal mass of matter as to produce the worlds, then, if it did not exist eternally, there must have been a time *when* it began. and accomplished that which Force, with its persistence, contained in this very matter had been unable to accomplish from all eternity. Kant and Spencer both say that heat was generated. If so, then, there must have been a time when it did not exist; because to generate is to cause, to produce, and if caused, it had a beginning. But what was heated? You reply, "the atoms or molecules." But the molecules, as such, existed from all eternity, and must first have been cold; for if not, heat could not have been generated, and if generated, what caused it? Not themselves? They could not be the cause of their own causality; could not acquire a quality they did not possess from all eternity.

Jubal, where is your theory now? The moment you admit a beginning you assert causation; and to assert Self-existence, is to deny causation.

Yet with these conclusions of inexorable logic before him, Mr. Spencer, after disposing of other theories for the existence of the visible universe, says: "We are obliged, therefore, to fall back on the Self-existence theory as the one commonly accepted, and commonly supposed to be satisfactory." Yes, and this is the best he can do; because, he further says: "The Self-creation theory is Pantheism, and creation by an external agency is an impossible idea, not representable in thought." If so, how then can Mr. Spencer name it or define it?

However, we suppose we must submit and concede, that it is not only a possible idea, but is also representable in thought, that an infinite, eternal, unintelligent existing Something, which

we call Matter, did of itself produce the worlds, or, if not this, that an unintelligent Unknowable Reality possessed the faculty of choosing between modes, adopted a particular one and set Force to carry it out; also, that this mode was so perfect, that with it, Force was enabled to produce that which did not previously exist, namely: "The world and everything in and on it." At the same time, Mr. Spencer says: There was no beginning of life or *anything*.

We have conceded, my young friend, that force is persistent, for had it not been it could never have forced those poor little molecules into Kant's "fiery gas;" those "globes of molten liquid, like gigantic drops of melted metal." And we would say to Prof. Kant and Mr. Spencer, if Force did, at that hypothetical time, succeed in forcing the kind of molecules which pre-existed, to aggregate and form those globes of molten liquid, we very much doubt if it forced Prof. Huxley's "life-matter" molecules, which must also have pre-existed, into them; for had Force done this, these philosophers would never have been here to tell it; as life cannot exist in a temperature above boiling water, or 212° Fahrenheit. This being the limit, so far as we know.

Prof. Jubal Continues His Lecture.

Young gentlemen, every theory or hypothesis, in order to be sustained, must be consistent with all the facts which affect it, and not repugnant to any logical conclusions that can be deduced from it. For instance: Conclusions of impossibilities, such as Prof. Credo has endeavored to draw from the theory of self-existence, namely: The impossibility for a *time*, and a *when* to exist in an eternal state of existence; the impossibility for a void space, motion and distance to be in a full thing; also, if force had no beginning, the impossibility for it to begin to do something it was not compelled, from its nature, to have been eternally doing, causing, if you please, motion, and aggregating the molecules.

If such conclusions can be logically drawn, then, of course, it would negative the theory, for no theory or hypothesis can rest on impossibilities. Whether or not you think that Prof. Credo has succeeded in drawing such conclusions, you at least

have gained some knowledge which will assist you in following us when, from the same theory—a self-existing universe—we shall draw our logical conclusions, that in Nature there are no such things as Cause, Effect, Growth, Death, Time, nor Impossibility; but "Whatever Is, always Was."

We will first re-state the theory. The whole space of the Universe was once filled up equally full of a single homogeneous mass of matter; that this matter self-existed; had no begining, and that every element, every material object, every phenomenon in Nature which acts on our senses, is composed of or is an attribute of this matter. That from this matter there has been produced the visible universe, our world, and everything in and on it; that this matter is indestructible; that in its nature there is something that is fundamental or ultimate which endures and perseveres under all and every, what we call, Change. In other words, it remains unchanged throughout all the manifold so-called changes of Nature. For instance: Water was cold. It has ceased to be cold and has become hot; but the water remains substantially the same under both conditions.

To assist us in drawing our conclusions, we shall call to our aid some eminent philosophers. We shall not consume our time in giving references to the works and pages of those philosophers from whom we shall quote; for when you gentlemen come to reading their works, you will find them correct. We have already given you a most important quotation from Mr. Spencer, which we desire to repeat. One upon which rests the whole fabric of his "Synthetic Philosophy." We do this for the reason that there is no mistaking Mr. Spencer's meaning; for he became justly indignant, and took his critics to task for making him appear as holding to anything like a beginning. So, in a letter to the "North American Review," Mr. Spencer says:

"The absolute commencement of organic life on the globe I distinctly deny. The affirmation of universal evolution is in itself a *negation of an absolute commencement of Anything.*" [Mark the words in italics.] "Every kind of being is but the product of modifications wrought out by insensible gradations on a pre-existing being."

Mr. Spencer had previously stated that which embodies this doctrine in his "First Principles," wherein he says:

"An entire history of anything must include its appearance out of the imperceptible and its disappearance into the imperceptible, be it a single object or a whole universe. Hence, wherever we now find Being so conditioned as to act on our senses, it must have had an *antecedent existence* under this sensible form, and will have a *subsequent existence* under this sensible form. * * * A philosophy stands convicted of inadequacy, if it does not formulate the whole series of changes passed through by every existence in its passage from the imperceptible to the perceptible. If it begins its explanations with existences that already have concrete forms, or leaves off while they still retain concrete forms, then, manifestly, they had preceding histories, or will have succeeding histories, or both, of which no account is given. A philosophy which says nothing about them, falls short of the required unification. Whence it follows that a formula applicable to existences taken singly and in their totality, must be applicable to the whole history of each and to the history of all."

The doctrine embodied in these quotations is, that there neither is nor has been any cause nor effect, but "Whatever Is, always Was," and will forever Be; for it is explicitly stated, that "every kind of a Being, be it a single object or a whole universe, pre-existed; had an antecedent existence under [Under what?] their own peculiar individual sensible form, and will have a subsequent existence under this sensible form." Then, as these sensible objects had no beginning, and, as there is no annihilation, they will have no end. Whence it follows that every object is immortal.

Professor Haller of Gottenberg, who is called the "Father of Physiology," tells us, that "no really new formation takes place during what is called the evolution of each individual organism, animal or plant, including therefore, Man; there is only an unfolding of parts, all of which have, from all eternity, been present, pre-formed and complete. Every organic germ, therefore, contains all the parts and organs of the body *pre formed*."

The great philosopher, Charles Bonnet, of Geneva, says: "Nothing is really produced in the living world, but the germs which develop, have existed since the beginning of things, and nothing dies; but when, what we call death takes place, the living thing shrinks back into its germ state."

Bonnet agrees with Leibnitz, that "no such thing as *generation* in the proper sense of the term, exists in nature; it is merely expansion of the invisible to visibility."

We do not desire at this time to comment upon this support of our logical conclusions, nor touch upon Evolution and Origin of Species; but will remark, that if what these philosophers, Spencer, Haller, Bonnet and Leibnitz say be true, then it negatives and destroys Evolution in the Darwinian sense, because it avoids the necessity of accounting, for instance, for the elephant, by producing him from the animalcule, either by Evolution, Transmutation, Descent or Natural Selection. He is not the *effect* of a *cause*, simply because he *was*. His germ contained all his parts and organs pre-formed, complete and present in a sensible form from all eternity. He was an elephant in the germ state, and like every object of whose existence we are made aware by its acting on our senses; when his germ fructified it could produce an elephant only. And as in the unfathomable abyss of a supposed time, he *was*, he could not come into visibility except when his turn, or time came, and then only upon a particular moment. And on the theory of Evolution, all the other powers of nature could neither have hastened nor prevented it.

Let us hear Professors Huxley and Haeckel upon this.

Prof. Huxley says: "If the doctrine of Evolution be true, the existing world lay potential in the Cosmic vapor, and a sufficient intelligence could have predicted at that time, during the existence of the Cosmic vapor, what would be the state of the Fauna of Britain, in 1869."

This is true, if the doctrine of Evolution be true, and a sufficient intelligence can do the same to-day. Because having a knowledge of the molecular conditions, and basing its prophecy on the law of Evolution, it could predict at what time a particular individual would arise in a future time. It could foresee at what time Evolution would bring about such molecular conditions that the particular molecules out of which such individual, or a world would aggregate and form that particular individual or entity. For, as Mr. Spencer says: "The materials are there. It only needs Force or Evolution to bring about the necessary combinations." And notwithstanding the individual, like the world, lay potential in the Cosmic vapor, or potential from all eternity. This intelligence would know its future history, would know that it could not come into

actuality before that time. In other words, its own particular time.

Prof. Haeckel says:

"The number of *potential* or possible individuals existing in the germ state which might arise, is very much larger than the number of real or actual individuals which do live simultaneously on the earth's surface." * * * * *

"The coming into actual existence of an individual depends on the natural law. The *potential* or possible exists in the primary molecules for the actual existence of every individual thing. Should the aggregation of the peculiar molecules out of which such individual is to be formed take place, then, potentiality becomes realized in act. Hence the saying of St. Thomas. 'Plato might never have been born, although the possible was there in primordial matter.' We cannot deny the potentiality of all things in the molecule, or we would have to admit Creation by Fiat."

Although Prof. Haeckel quotes St. Thomas as sustaining this doctrine, we do not understand St. Thomas as meaning that the potentiality which exists in primordial matter had no beginning; because the philosophy of St. Thomas is based on an act of Creation, viz: That the Creator impressed upon nature the forces or laws which, as St. Augustine says, should bring into actuality, at their proper time and season, that which was created potentially; but as the theory of a self-existent potentiality in the molecules is a denial of creation, or causation, we Self-existence philosophers, therefore, cannot deny the potentiality of all things in the molecule, or we would have to admit the doctrine of Creation by Fiat. However, before reaching Cause and Effect we must give you one more quotation. Prof. J. Clerk Maxwell says:

"Molecular science sets us face to face with physiological theories. The process by which molecules become distributed into *distinct species* is not one of which we know of any instances going on at present, or of which we have any mental representation." * * * "Molecules are never born and they never die. They had no progenators and they leave no offspring. They differ from each other; each kind being assorted into sets. Molecules are physically independent of each other, and it takes about two million of molecules to form the smallest living object that can be seen under the microscope."

And speaking of Mr. Darwin's theory of Heredity, or "like producing like, the offspring is like the parent," Prof. Maxwell says:

"On this theory, a microscopic germ is capable of developing into the highest organized animal. Another germ developes a totally different kind of an animal, yet amply sufficient to form the hereditary *characters* of every organ in the body, and every *habit* from birth to death."

We might stop here to call your attention to a logical conclusion which must be deduced from these quotations, namely: That they contain the fundamental essence of Fatalism and deny the doctrine of Free-Will. Notwithstanding this, we modern self-existence philosophers do not shirk this conclusion. We do not believe that the will of man is ever free. Agreeing with Prof. Huxley, that a living organism is a molecular machine, we have, upon the grind-stone of mechanical necessity, ground down our Materialistic Philosophy to such a keen edge as to enable us to cut freedom of the will out of the molecular machine, Man. Still, in the social state, should a man steal, we think it right and just to punish him for obeying this necessity, this law of his being; while at the same time we rear monuments of brass to commemorate the virtues of another man who obeyed this same necessity, this same law of his being, which controlled his actions, for not stealing.

That you may learn that Self-existent philosopers do not believe in the doctrine of Free-Will, we will give you the teaching of some of them. Prof. Haeckel says: "The will of animals differ from that of man only in the quantity, not in the quality. The will of man in reality is never free." Mr. Spencer in his "Psychology" says:

"If Psychial changes conform to law, there cannot be any such thing as free-will. I will further say that freedom of the will, did it exist, would be at variance with the beneficent necessity displayed in the evolution of the correspondences between the organism and the environment."

Prof. Dr. Draper, of New York, says:

"It is an illusion that the actions of men are determined by Free-will. We are swimming, playing, and struggling in life's stream in spite of all our voluntary motions to a pre-determined shore."

Young gentlemen, as you journey through life and do not behave yourselves, it is a consoling thing to know that you cannot help it; because your actions, characters, thoughts, aud habits are nothing more than the motions of an organic, mechanical,

molecular machine, which pre-existed, was pre-formed, and had a sensible form of existence from all eternity. Consequently as you now are, you always were; and, according to Prof. Huxley, a sufficient intelligence could have told you, inconceivable ages ago, when you formed a part of a hypothetical gas vapor, that you would be born; would come into visible existence in the 19th century, on such a day, such an hour, and such a minute; that you red-headed boys would be formed out of red-headed molecules; that you would do just what you have so far done, and what you will do in the future. So, under these conditions, while you are "swimming, playing, and struggling in the stream of life," the only advice we can give you is that of Epicurus and Skepticus: "Accept life as it is, and enjoy pleasure while you may." But remember, that on those principles, while Nature prescribes and compels you to do just what you will do, leaving you no choice in the matter, she is a tyrant who will punish you for obeying her. If she has pre-determined that any of you boys shall drink, gamble, and steal, she will inflict upon you the punishments of sickness, loss of money, and probably the penitentiary. But if Nature has pre-determined that you *shall* behave yourselves through life, you need not flatter yourselves that you are entitled to any merit; because you could not prevent it. Taking this view of the matter, it accounts for all the different actions, characters, and habits of people in this world.

Cause, Effect, Change. In What do they Consist?

We shall now take up Cause and Effect, and endeavor to show, on our Self-existing Theory, that they are illusions; that the logical conclusions must be, that in nature no such things exist, else, the theory cannot be sustained. It will, therefore, be necessary to again call your attention to what is meant by *Self-existence.* Mr. Spencer defines Self-existence as being "the denial of creation; of the absolute beginning of life or *anything.*" Prof. John Fisk says: "The affirmation of Self-existence is the denial of *causation*, and when we deny causation we deny *commencement.*" These are the true definitions of Self-existence.

Philosophy being a system, a science for investigating or

searching into the nature and reason of things ; to enquire into causes and effects, taking for granted, of course, that such things exist, we must first understand what Philosophers mean when they speak of Cause and Effect.

Whether or not there are such things as cause and effect, there is one thing certain, we can have no knowledge of in what they may consist, nor of any phenomena, outside ourselves, except as acquired, either directly or indirectly, through the testimony of the senses. We acquire knowledge of phenomena *directly* when they present themselves and act on our senses through which we perceive them. We gain knowledge *indirectly* of phenomena which our senses do not perceive, from their relation to objects which the senses do perceive. But of this we shall speak hereafter, when we lecture on "No Impossibility in Nature." We will mention here, however, that the external world in relation to each one of us is only an external being which affects us ; and only as it affects each identical individual one of us can we even infer that it affects others likewise. Even the understanding, Aristotle says, has first been in the senses. Therefore, when we reason and form a judgment of what may constitute Cause and Effect, we can do so only from the testimony derived either directly or indirectly through the senses. And while all knowledge is gained through the medium of the senses, still in philosophy, reason and reason only, is and must be the supreme and ultimate arbiter.

As cause and effect includes change, let us first learn what philosophers who deny the Self-existence theory and hold the doctrine of Causation mean by

Change.

All change involves a transition from not-being to being ; the least change is inconceivable without this transition. Whatever is changed, is, after changing, constituted in another way than it was before the change. It has this mode of being which it had not before. It exists *now*. It has passed, therefore, from not-being to being.

The Self-existence theory denies this, as there can be no change without causation. It affirms, that all things are virtually contained *in* matter, and that the new state only adds a new

form. Now, does this new form, as such, involve something *new* in reality? Either it does or it does not. If it does not, there is no change. If it does, it was either contained in the matter or not contained in it. If contained in it, there is no change. If not contained in it, whence does it come? Not from nothing? Not from itself? As matter can no more change itself than it can make itself; and as the theory denies causation, we, therefore, prove our logical conclusion, "Whatever Is, always Was." Now, what do philosophers who hold the doctrine of causation tell us they mean by

Cause?

All that makes a thing pass from not-being to being, as the effect is all which passes from not-being to being, as according to the axiom, "Nothing cannot be a cause, as every cause is a being, or exists." Cause, they say, is that from which a thing results, that which gives, makes, produces, communicates, generates. Efficient causality supposes, that a precedent being energizes the production of a subsequent being, which is called the effect, and which must exist prior to the effect. So, then, according to this definition, to cause is to give being, to generate, to produce, etc. But, what means to generate, to produce? To cause. What means to cause? To generate, to produce. Here these philosophers fall into a vicious circle, in saying, that to generate, to produce, is to cause, and to cause is to generate, to produce. What do they mean by

Effect?

The idea of effect also contains the idea of being. It is that which receives, proceeds, emanates, results, comes. It is something which is produced, made, etc. It did not exist *before*. It exists *now*; therefore, must have had an antecedent, which is called the cause. We admit that these meanings are correct, if such things as cause and effect exist. But as we are unable to conceive absolute nothing, unable to conceive an absolute beginning; and as we always conceive something as existing, it follows that we cannot think without our thought implying an eternal existence. So, according to these philosophers, if an effect is something made, produced; something which did not

exist *before* but exists *now*, then, in order to have a beginning, this something, Effect, must come from nothing, which is impossible, without an act of creation. Now, as the theory of Self-existence is in direct antagonism to that of Creation—therefore denies causation, and "necessarily means," as Mr. Spencer says, "an existence without a beginning," it follows, that what we call Effect, must have existed eternally with what we call Cause, or there are no such things in nature. This conclusion must be arrived at from the Self-existence or No-beginning theory. Let us put this argument in a syllogistic form:

Major Premiss: There was no beginning of life or anything.

Minor Premiss Jubal has life and is a thing.

First conclusion: Therefore, Jubal had no beginning.

Second conclusion: Therefore, Jubal is not the effect of a cause.

As matter is held to be indestructible; and as every object in nature from an atom to a world is itself, its own individuality only, with its own history from all eternity, let us, from the premises, see whether we are not driven to the logical conclusion that we are immortal.

Major Premiss.

Nothing is produced in the living world, and nothing dies.—[*Bonnet.*]

Everything will have a subsequent existence in a sensible form.—[*Spencer.*]

Minor Premiss.

Jubal *is*, he exists in the living world. Jubal was not produced; will never die and will have a subsequent existence in a sensible form.

Conclusion.

Therefore: That which *is*, being indestructible, Jubal is immortal.

Thus, you see, young gentlemen, that what we see happening all the time, and what we fear will happen sooner than we want it to ourselves, and what we all have called Death, is an illusion. There is no such thing as death. When what we call death takes place, the being merely passes away from the

perception of our senses. Norwithstanding all our philosophizing, this question of immortality is a fearful one, when we ask ourselves: To what condition of immortality? So, if you have any doubts of the truth of our Self-existence, or Atheistic Philosophy, you had better make your calling and election sure. This is what Prof. Credo would tell you.

As you now understand what is meant by cause and effect, let us see how we philosophers who deny causation by an external agency; an intelligent First Cause, get over the difficulty, which presents itself, that of changes which we admit have taken place in matter since it was once in a single homogeneous mass equally filling up the whole space of the universe. The great logician, Mr. John Stuart Mill, had driven our logical peg completely home; but would not let it stay home, for had he, it would have stopped all philosophizing on causes and effects. After logically settling the question from a No-beginning premiss, that effects must have existed *always*, Mr. Mill gets up a "con-cause," starts a new premiss, and then proceeds philosophizing from it.

JOHN STUART MILL ON THE PRIMEVAL AND UNIVERSAL ELEMENT OF ALL CAUSES.

Mr. Mill says; "The cause of every change is a prior change; and such it cannot but be; for if there were no new antecedent, there would be no new consequent. *If the state of facts which brings the phenomenon into existence had existed always, the effect also would have existed always.* [Here is where he loosens the peg.] It is thus a necessary part of the fact of causation that the causes as well as the effects had a beginning in time, and were themselves caused. It would seem, therefore, that our experience, instead of furnishing an argument for a First Cause, is repungant to it; and that the very essence of causation, as it exists within the limits of our knowledge, is imcompatible with a First Cause.

"But it is necessary to look more closely into this matter, and analyze more closely the nature of the causes of which mankind have experience. For if it should turn out that though all causes must have a beginning, *there is in all of them a permanent element which had no beginning;* this permanent element may with some justice be termed a first or universal cause, inasmuch as though *not sufficient of itself to cause anything*, it enters as a con-cause into all causation. It would seem then, that the

only sense in which experience supports, in any shape, the doctrine of a First Cause, viz., as the primeval and universal element of all causes; the First Cause can be no other than Force.

"Still, however, it may be maintained that 'all force is will-force.' But if there be any truth in the doctrine of conservation of Force, volition does not answer to the idea of a First Cause; since Force must in every instance be assumed as prior to it. All that can be affirmed, even by the strongest assertion of the Freedom of the Will, is, that volitions are themselves uncaused and are, therefore, alone fit to be the first or universal cause. But, even assuming volitions to be uncaused, the properties of matter, so far as experience discloses, are uncaused also, and have the advantage over any particular volition in being eternal."

When we first read Mr. Mill, we could not clearly understand what he meant by, what to us was a new philosophical idea, "con-cause." So we went and consulted Prof. Credo. We read to him all the quotations from the other philosophers, as well as those from Mr. Mill, which we have to you, and as the Professor entered so fully into the subject, extending his criticism of the principles contained in those quotations to such a length, that we cannot recall them; we again invited him to repeat them to you, gentlemen. It is for this purpose that he is here to-day.

Prof. Credo Further Examines the Foundation Upon Which Rests the Philosophy of Herbert Spencer.

Prof. Credo.—My young friends, your Professor of Philosophy, Prof. Jubal, like every philosopher who has a theory, in order to sustain it, is compelled to show that it is not repugnant to any legitimate conclusions which can be deduced from it. So, as we said to Prof. Jubal, that upon the No-beginning theory if, as Mr. Mill says: "There is in all causation a permanent element which had *no beginning*, and not sufficient of itself to *cause* anything," we would ask how could this some other thing, this element, power, "con-cause," come into existence, have a beginning, and enable that which is not sufficient of itself to produce, make, generate, or cause an effect, thus bringing not-being into being?

Mr. Mill says: "If there be no new antecedent there can be no new consequent." Consequently, if matter and force be un-

caused, they cannot be the material cause themselves; because then, matter and force would be the cause of their own causality, and if so, would be able to produce a mode in order to effect that, which of themselves they were incapable of effecting. To suppose that existence being of one form, suddenly took of its own accord another form, requires a change without a cause, which is impossible. Then, how could this infinite homogeneous mass of matter become that which it was not from the first? The instant it is admitted that anything had a beginning, that instant the Self-existence theory falls to the ground; because the assertion of Self-existence is the denial of causation, and when we deny causation we deny commencement, so in order to conceive existence—Self-existence—we must conceive existence throughout infinite past time.

My young friends, before we go further, let us understand what we mean when we say Infinity; because we too often use this term without its proper meaning. We often speak of an infinite space; an infinite time; an infinite number of worlds, etc. Now, there can be but one infinite. An infinity of objects, beings, is a contradiction. If there existed, say, but two beings, each one would destroy the infinity of the other. A being to be infinite must be infinite in every way, without limit. It would also necessarily be immutable and eternal, for if it could change, it would cease to be infinite—therefore, all that is not infinite is finite. We Christian Philosophers hold, that infinity is an attribute of the Eternal Self-existing Being, we call God; the First, Final Cause of all mutable, finite things. Finity is that which had a beginning, and must, from its condition, be mutable. No finite thing can become infinite, else, it would cease to be what it is—finite. An infinite creature would be no creature; a finite God, no God. But we will leave aside the question of the existence of an Infinite, First Cause, and confine ourselves to examining the theories of the origin of the visible universe. Of its being produced without an Intelligent, First Cause.

Now, Prof. Jubal, we will take your Cosmic Theory, namely: That the whole so-called space of an infinite universe was once filled up equally full of a single homogeneous mass of matter—and it must have been full to be infinite—which was in disorder,

in a chaotic condition. Then, if this matter, as Mr. Mill says, "*was not sufficient of itself to cause any change, to effect or produce anything*," we would ask, as we did on a former occasion: Where did Force and Motion come from? These elements either existed always, or they did not. If they existed always, and possessed the property or power of causing change in this matter, thus effecting, producing the visible phenomenon of the universe, we want to know, and you No-beginning philosophers are compelled to answer, why had they not done from all eternity that which from the very essence of their nature they were compelled to do, but which, you say, they commenced doing at, what was *then*, a non-existent time? You may go on; upset your theory; contradict and vitiate your premiss of a No-beginning, or claim for it what you will; but upon it we want to know: What were the antecedents of the cosmical vapor? In the absence of antecedents, what was the *cause* of the Fire-mist, of Force, Motion, and Con-cause? You give us the antecedent of burning worlds, by taking us back to a primitive incandescent vapor, and call that a beginning. Even so, then, if the whole universe once consisted of a Something which we call Matter, in whatever condition, frozen or fiery; and if there existed no external agent to cause change, this Something would remain this same Something for all eternity. To avoid this conclusion, you philosophers claim a "Universal law of Evolution," which, Mr. Spencer says: "Is in itself a negation of an absolute commencement of anything." Yet, with this law of Evolution, Mr. Spencer builds up a philosophy which endeavors to account for the beginning of everything; forgetting, we suppose, that if Evolution had no beginning, it could not evolve a beginning of something which it was not obliged to have evolved from all eternity.

There is another difficulty: Admitting that Evolution has brought about change in this primal homogeneous mass of no-beginning matter, then there must have been a *time* when the change took place. Now, time is nothing more nor less than successive change in position of finite bodies in respect to certain points. There can be no succession in eternity. The very essence contained in the idea of an eternal self-existence or No-beginning, necessitates the idea of an infinite, eternal present, Now.

Time commences with finite, mutable things, and perishes with them. Everything lives in it, but it lives in nothing. Everything dies in it, but death has no power over it. Therefore, if the existence of a First, Final Cause be denied, then, Jubal, your logical conclusions are correct, namely: That in Nature there are no such things as Cause and Effect, but "Whatever Is, always Was" pre-existing from all eternity, which conclusions destroy Evolution in the Spencerian and Darwinian sense

In a few words let us prove this. As nothing cannot be a cause; as a cause is a being or exists, it *ipso facto is;* for if it is *not*, it cannot be a cause; and, as an effect is a something which did not exist *before*, but exists *now*, a something which has passed from not-being to being, it therefore requires a something distinct from itself to cause the transition, and which must exist prior. But, as there can be no prior where there is no beginning, but an eternal existence of everything, then, as Mr. Mill admits, "that if the state of facts which brings the phenomenon into existence had existed *always*, the effect also would have existed *always*." Consequently, if there existed no First Cause for the existence of finite things, then cause and effect are mere words, like the word Nothing, which presents no meaning as corresponding to any objective reality, for non-existence is an impossibility.

Jubal, your No-beginning theory is nothing new. The fact is, that you modern philosophers have stolen your idea of the eternal existence of Matter from the Greek philosophers. Anaxagores says: "Wrongly do the Greeks suppose that aught begins or ceases to be, for nothing comes into being or is destroyed, but all is an aggregation of pre-existing things." And your "Force," as the universal impelling power, you have stolen from the Buddhist; for the fundamental principle of Buddhism is, that there is a supreme power but no Supreme Being. Its resting point is Force. It asserts an impelling power in the universe; a self-existent, plastic principle, but not a self-existent, an eternal, a personal God. What is this impelling power but Mr. Spencer's "Force?" And, as Mr. Mill rejects the idea that force is Will-force, that volition does not answer to the idea of a First Cause. What is this but the Buddhist's self-existent, plastic principle, or impersonal God?

You philosophers, Jubal, find great difficulty, and have many different ways of accounting for change in an assumed infinite homogeneous mass of eternally existing matter. Mr. Mill clearly saw that if matter, including its properties, be assumed as eternal, and as no change can take place without a cause he was compelled from the premises to find some means by which change can take place. He, therefore, asserts that "there is a permanent element which had no beginning, and which of itself is not sufficient to cause [change] anything." Still, he makes this permanent element, itself being impotent, enter as a "con-cause" into some other impotent Something, and, by the union of two or more impotent Somethings, become, as he says, "the cause of all causation."

Mr. Spencer encountered the same difficulty. Being too good a reasoner not to see that change in an infinite homogeneous mass of Self-existing matter must necessarily be attributed to some power, else this mass of matter would remain homogeneous eternally, was compelled to find some means by which change could be effected, in order to avoid admitting the existence of an external agent who impressed forces or laws on this matter. So, Mr. Spencer imagines three *internal* agents, with which he forms a sort of a Causing Company; not a Self-made, but a Self-existing Company, consisting of an Unknowable Reality, Force and Persistence. The Unknowable, being the head of the firm, invents a mode and Force with Persistence, carries it out, and with it, not only at some non-existing time produced our visible universe, but is now causing all the visible changes we see taking place in Nature. Thus with that modesty which is the great charm in all dogmatical philosophers, Mr. Spencer is enabled to say: "There is no necessity for the existence of an external agency to account for it."

Further On the No-beginning theory, let us ask: How were the visible universe and the world produced? Mr. Spencer says:

"All things, be it a single object or a whole universe, which come from impercep ibility to perceptibility had an antecedent existence under a sensible form from all eternity."

Mr. Mill says: "If the state of facts which brings the phenomenon into existence had existed always, the effect also, would have existed always."

Therefore, taking these assertions, let us test them by taking that part of your lecture, "The Birth of the World." Now, the world is a thing, an existing entity, and no more so than an invisible atom. Democritus tells us that a single atom may constitute a world. Now, note, if as some philosophers and scientists tell us, that primodial matter in its fundamental essence, remains unchanged throughout all the manifold changes of nature; that nature never varies, never fails; that her laws—as you philsosphers hold—are immutable; and if, as Mr. Spencer says: "There was no beginning of anything," and if every object, organic or inorganic, pre-existed, pre-formed, whole and entire in a sensible form from all eternity, then, if the world did not exist in its sensible form, where was it? If it was *not*, but now *is*, where did it come from? If it lay potential in the cosmical vapor, what brought it into actual existence? If it was caused, it makes no difference how, then that cause, be what it may, must necessarily have existed prior to the effect of the world's visible existence. If the cause did exist prior, then the world had a beginning. If it did not, then it always existed in its present form. Now, Jubal, do you not see that this reasoning destroys the Self-existence theory and drives you philosophers to the alternative—Intelligent purpose, or blind chance?

PROF. JUBAL.—But you must remember, Prof. Credo, that our Self-existent philosophers say, that Force is that power. Mr. Mill says, that "the primeval and universal cause can be no other than Force." Mr. Spencer says:

"Force made the molecules aggregate so as to form the world and everything in and on it. The materials were there. It only wanted the necessary combinations."

PROF. CREDO.—Very well, but this is only taking a for granted leap forward; for the question immediately arises, What caused Force? Mr. Spencer says: "Force is a mode of an Unknowable Reality." How does he *know* it is, or on what principle of logic assert it to be unknowable? But let us see where that leap forward lands us?

Mr. Spencer in his efforts to find some ultimate, mixes up his powers. He first uses one and then another for his primal power, or cause. He first says: "Force is the Ultimate of Ultimates; is fixed in quantity and had no beginning." Then he tells us,

that "Force is a mode of an Unknownable Reality." Therefore, as we have already stated and must repeat, a *mode* is a manner, a method, a process, a way of doing a thing. So, if Force is only a *mode*, a way, that something else, namely: the Unknowable Reality, used for the purpose of doing something which it had not done before, from all eternity, *i. e.*, bringing into actual existence the world, etc., etc., then, it follows that the Unknowable existed prior to Force, else. it could not have used Force as a *mode* to accomplish something at a particular instant of, what was then, a non-existent time. Therefore, force, according to Mr. Spencer, must have had a beginning, and cannot be, as he says, "the Ultimate of Ultimates."

Should it still be insisted, that Force had no beginning, then it must have existed eternally with the Unknowable and cannot possibly be a *mode* of some other Ultimate. There can be but one Ultimate. There is no superlative to this idea. So in getting back behind that leap forward, and arriving at the Ultimate, we have to stop. There is no getting further back than this, unless there can be an Ultimate which is ultimately ultimate to an ultimate Ultimate. To use a low expression, Prof. Jubal, this is the last button on "Gabe's coat." The last ultimate philosophical nickel in Mr. Spencer's philosophical pocket.

Yet, still, Jubal, notwithstanding all this, we might give in, and admit that "Force is a mode of an Unknowable Reality," if Mr. Spencer would admit that this Unknowable is an Intelligential Unknowable; but he will not do this, as his unintelligent Force can do all that is necessary; bring order out of chaos [not *make* molecules, though], but make them aggregate and form the world. But if he would admit and say, "Well! I will give you your unthinkable, impossible idea of a Supreme Intelligence, an external agent, and let me see what you can make of it."

Jubal, we do not know if we can make much of it. We are not one of your kind of *making* philosophers, not even a make-yourself philosopher; but we think we could make ourselves about as easily as we could self-exist ourselves. And we might be more able to think; it might appear more reasonable to our mind, that an intelligent Unknowable might be able to do more than an unintelligent one. An intelligent Unknowable might,

had it adopted that "mode," have created Force, and endowed it with the persistent quality which Mr. Spencer says it possesses. It might, in this way, have *caused* Force to make the pre-created, or, if you prefer, the pre-existing, molecules to aggregate, and thus produce all the visible effects we see in nature, and enable us Christian Philosophers to believe in what Prof. Haeckel calls the "Fable of Creation," and Mr. Spencer, the "Hebrew Myth."

And we should tell Mr. Spencer, that upon the basis of an Intelligent Unknowable, his Force, his Evolution, in fact, much of his philosophy might be accepted as a reasonable and thinkable explanation of the formation of the world. We could then, in our imagination, conceive of a cause for the primal movement of Prof. Kant's gas-filled universe, and how Force, guided by intelligence, could bring order out of disorder and force the pre-created molecules to aggregate.

Also, how intelligence could touch the springs and cause Force to initiate a molecular motion which would set atom clashing against atom, molecule combining with molecule through millions of leagues of space and billions of ages of time, to build up this stupendous, wondrous, orderly, law-obeying, visible universe, and thus say with him, "Force is a mode of an Ultimate Reality." And, although we may not be able to conceive the process, our reason would find no impossibility in it.

And with all due deference and respect for his superior intelligence, we should tell Mr. Spencer, that in our "superstitious ignorance," we may be allowed to worship this Intelligent Unknowable, without caring a fig, when he tells us:

"This is what passes current for piety." And, also, if even he, as he says: "Can find nothing satisfactory in the conception of a creator prescribing to himself a certain unit of composition for all creatures of a particular class, and then displaying his ingenuity in building up a great variety of forms without departing from the Archetypal idea; that a more advantageous arrangement might have been adopted."

We say, if even he can find nothing satisfactory in this, we can, and would ask Mr. Spencer, if "a more satisfactory arrangement might have been adopted." What becomes of the "Perfection of nature's laws?"

He tells us: "Everyone has heard of the king who wished he had been present at the creation of the world, that he might have given good advice." Now, Jubal, everyone has not heard of that king; and we are one of those who have not; and, without doubting his word, are inclined to think that that king must be the king of modern philosophy, and his name is, Herbert Spencer.

After telling Mr. Spencer what we might make out of the unthinkable, impossible idea of the existence of a Supreme Intelligence, we supppse he would say: "Get out with your Force being a mode of an *Intelligent* Unknowable! 'Creation is an impossible idea, not representable in thought.' And while self-existence is equally unrepresentable in thought, still, it is more satisfactory, and about the only theory we philosophers could adopt to avoid admitting an external agency; while, at the same time, 'there should be no antagonism between science and religion,' but, 'the beginning of life or anything, I distinctly deny'; because, as I have already stated.

'Arguing from the atomic combinations, and interpreting the mazy nexus of phenómena, the result would be, that when the binary compounds of matter acquired a hitherto novel state, or, entered into hitherto novel relations, so often would non-existent or even impossible laws become possible and necessary' to bring order out of chaos, and this was done by Force, which, with everything else, had no beginning. And, I say, that this doctrine, this philosophy, is more in accordance with the independent, right use of the mind of a philosophical, walking, talking, human, biped-mammal creature, which, if its 'internal relations keep adjusted to its external relations,' might live three score years and ten, or under some extremely favorable condition of its environment exceed that number. And which, also, if: 'The strengths of its inner cohesions between its psychical states keep proportionate to the persistence of its outer relations symbolized; this being', as I have shown, 'the law of intelligence'; could point out to your Supreme Intelligence the 'mistakes he has made.'"

This Jubal, is about what Mr. Spencer would have said, because he has said so already, as you know, having read his "New System of Philosophy."

And what is this Philosophy? Mr. Spencer claims to be a realist, but has failed to draw the line sufficiently plain to mark the division between Realism and Materialism. From his general scheme of evolution, one would be prepared to find him avowing himself a materialist. Yet he seeks to avoid this conclusion by saying that "it is one Unknowable Reality which manifests itself in the material and in the mental domain." At the same time, this Unknowable is commonly spoken of as Force, and in many places seems to be identified with material force.

Let us first understand what Materialism is, by questioning one of those philosophers.

What is the world? A mass of matter subject to simple mechanical laws of motion.

What is the human mind? Nothing but matter.

What is thought? A modification of matter.

In what does the difference between thinking and non-thinking matter consist? In a little greater or less subtility, in a more or less happy disposition of atoms.

What are sentiments? A material phenomenon.

What is the origin of man? That of matter—a phenomenon offered by a quantity of molecules which happen to be disposed in a certain way.

How came the molecules to form man so superior in form and intellect to the monkey? By Evolution—man is of the same nature as the brutes, only he has reached a higher perfection. Man has no nobler origin nor loftier destiny than the monkey. The course of ages may develop and perfect the monkey form, and render it equal with his; develop and so perfect his cerebral organs, that from this very monkey, men will be born equal in intellect to a Plato, a Newton, or a Bossuet.

Then on this theory, in producing such man, the molecules have to obey a law of some kind; and if, as some of these philosophers hold, all his thoughts, feelings and expressions are but the results of their action, and we can apply the idea of law to such phenomena, it must be one of blind necessity, which reduces your philosophy to fatalism.

Leaving aside for the nonce, this origin of the structure and reason of man, history does not show that the march of pro-

gress in society, art and science has been produced by a blind necessity. The events of man's career have not been mingled together indiscriminately in the dark urn of destiny, nor that fatalism holds the world enclosed in an iron circle. But that a wonderful chain has stretched over the course of the centuries, one which has not fettered the movements of individuals or of nations, but a chain which accommodates itself to the ebb and flow, which are required by the nature of things. At its touch, great thoughts arise in the minds of men. This golden chain is suspended by the hand of the Eternal. It is the work of an Infinite Intelligence.

We tell you, Prof. Jubal, when a man comes to consider himself nothing more than a bundle of atoms accidentally aggregated and evolved; to consider himself constrained by the irresistable force of destiny, and attached to a chain of events over which he has no control, denying, as you philosophers do, Free-Will; when he comes to suppose that the operations of his mind—those active proofs of his freedom—are but vain illusions, he soon annihilates himself. He feels himself assimilated to the brute. He ceases to be the prince of living things—the ruler of the earth. He is nothing more than a machine, fixed in its place, which is compelled to perform its part in the great system of the universe. With no Free-Will to choose, merit and demerit, praise or blame, reward and punishment, are only unmeaning words. He is brought into the world like a flower, to be sometimes breathed upon softly by the zephyrs, and sometimes to be blasted by the north wind. Your philosopy makes Nature a monster—a tyrant of infinite power, which evolves or brings into existence creatures in order that they may suffer. She tortures her miserable victims while they live, and crushes them into insentient atoms when they die. Implanting in man's breast a hope of a future life, she then mocks him by plunging him into an eternal abyss of oblivion.

Now, Prof. Jubal, before we close giving you our views upon the quotations you have made, we desire to call your attention to another refutation of your No-beginning theory. You adopt the maxim, "there is no rule without an exception," which is merely to avoid what Prof. Huxley says, "For if one single fact is brought and shown to be contrary or inconsistent with the hy-

pothesis, the hypothesis falls to the ground." You also assert that "the laws of Nature are immutable; that the basis of all science is the immutability of her laws and of events."

We deny both these propositions. The maxim and the basis of science are false—must be from the very essence of immutability. Let us philosophize a little on this. As immutability means unchangeableness, unalterableness, not subject to change, then, let us ask: "How can that which is governed, affected, and controlled by an immutable law, change or have an exception? We will put aside the question of Chance; of the idea that Nature, after an infinite number of trials and fruitless combinations, did, at some unimaginable period in time, hit upon order; because Chance is no real cause. We will also put aside the question of an overruling Supreme Intelligence, the Creator of all things; but we will examine into law.

What is Law in Itself?

Law in the intelligent order is a Fiat of a power; a rule of action prescribed by a supreme power, let the personality of this power be what it may.

Law pre-supposes an agent, a power, which must exist antecedently to the law. When an intelligent power formulates a rule, it contemplates that when enforced, it will affect a certain event, as a law can effect that only for which it is a law. Observe, we say *a*ffect, not *e*ffect. You say, that "Law in itself is the active principle which is contained *in* things." We deny this. In the natural order, law is that power or force which operates, which acts. It is, as we may say, the life of Nature, but it exists extrinsic to matter. In fact, Law in itself is nothing; has no proper existence; it comes when occasion needs. Like time, its birth depends upon the occurrence of events.

Law in itself is neither a cause nor an affect. Still, there can be no cause nor effect without the action of this external power, which we call law, affecting matter. We are so in the habit of using the expression, "The cause and effect of law," that it is difficult for the mind to divest itself of the notion that law is intrinsical or fixed *in* the nature of things, and produces effects. Prof. Platt says: "If Blackstone be correct, law is neither a cause nor an effect, but as a volition is *sui generis*." The Pro-

fessor also says: "The law of a thing is inseparably *in* the thing itself. A drop of water bears in its sphere a whole code of the laws of matter." Blackstone is correct. Law is the volition of a Will, and in Nature, of a peculiar kind, as we shall see; but the Professor is in error. The law of a thing is not *in* the thing itself.

Now, leaving aside the idea of a Will-power contained in the terms Contemplates, Formulates, Prescribes, and Fiat, and confining ourselves to what we call law in the natural order, with which you philosophers deal only, let us see how you account for mutable things being affected and controlled by immutable laws, and also where they came from. Let us test the logical quality of the great philosophical structure you have built upon this foundation—Immutable Laws.

In the first place: The idea of law cannot be conceived of as affecting immutability. An immutable state of existence can know no law. It is eternal. It cannot change. What we call forces or laws of Nature *affect* finite, mutable things which are *subject* to change. What we call Nature, is mutable or it is not. Changes take place or they do not, and forces or laws are as much a part of Nature as the things they affect and control.

You philosophers say, that these forces or laws are an inherent necessary quality of matter, contained inseparably *in* matter. If so; if these laws, these active forces which give impulse to matter, be inseparably *in* things themselves, we ask, and you are compelled to answer: How immutable forces or laws can be *in* mutable things? In other words: How can a thing *change*, if that which produces the change be not only a part of itself but the only part, or power capable of producing change, be immutable?

Laplace says of his own nebular theory: It is many thousand millions to one of its not being a true explanation of the origin of the visible universe. But let us take your accepted theory, the Cosmos, namely: That all space was filled up equally full of a homogeneous mass of matter, which was once in a fiery-vaporous condition. If so, and there was No-beginning, it must have been eternally in this condition, or even if not, when it was in this condition, it, together with the laws which affected and controlled it, was Nature—whole and entire. Then you say,

that from this condition of a fiery-vapor, she *changed* herself into rotating suns, moons, and planets. What! That which is immutable change? Mutable and finite things existed then or they did not. If they did, they could contain within themselves mutable laws only. If they did not exist, they must have had an antecedent cause which produced them from non-existence, which would be creating.

Should you fall back upon the doctrine of Potentiality, namely: That the world and everything in and on it, existed *potentially*, possible or capable to be, in a primordial mass of matter, which had No-beginning then, if the law of a thing is inseparably *in* the thing itself, the law by which the world became actual, must have been contained *in* this mass of matter, eternally co-existing with it; also, all the various laws of nature. We need hardly repeat the question. Why were these forces or laws not compelled to do from the first what you say they did at some subsequent time? Such, for instance, as the laws which gave impulse, affect, control, and inexorably compel the matter out of which sugar and salt are composed, to form crystals of a peculiar form—cubical. And deeper down than this. If there were No-beginning of anything, these crystals must have existed co-eternally with the law, consequently, they are not the *effect* of a law. If they are the effect of a law, then they must have had a beginning in time, which again upsets your theory.

Now, Prof. Jubal, if we are not consuming too much of your time, and are interesting these young gentlemen, we would like to still further apply our idea of what constitutes law to the so-called immutability of the laws of nature. We have said, that a law can affect that only for which it is a law; that the event must exist before the law which affects it; the law never before the event. Therefore, finite and mutable things cannot be affected by laws infinite in time and immutable in essence. If the "basis of all science is the immutability of the laws of nature and events," then nature must be an infinite ocean of immutability. There is no such ocean. The created universe is finite, contained in the infinite. While we may not know by purely philosophical means whether the universe is finite or infinite, we can know, and our reason compels us to judge, that no finite substance can be infinite, but must be limited, and

have a beginning in time. Why! Prof. Clifford goes so far as to say, that even space may be bounded, and announces that shortly we shall be able to assert its actual extent. What he means is, we suppose, that the limit of our real, actual, existing universe in space can be bounded. If this be so, and Prof. Clifford proves it, it will be a sorry day for you philosophers, with your "infinite space filled up with a no-beginning of Something which is Everything." Then, we Christian Philosophers can point you to a finite, mutable, created universe contained in the infinite. Then, we can understand how, as Blackstone says: "when God put motion into matter, he established certain laws of motion, to which a movable matter must conform." St. Thomas, speaking of the laws of nature, says: "God imposed certain laws *on* nature," not *in* nature. In either case, these laws cannot be immutable or even He could not change them. Immutability is an attribute of an infinite Being, which cannot impart its essence to a finite, mutable being. An infinite, immutable creature would be no creature; a finite God, no God. A power which makes a law, even by finite intelligences, has the power to change, suspend, or abrogate it. God has made the laws of nature universal, constant and uniform. *Affecting*, not *Effecting*, finite, mutable things. He is the primal cause, they the effect, and these forces or laws are to us seemingly immutable. The fact is, that law is nothing in itself, has no proper existence in the sense as generally applied to it. When we speak of what a certain force will do, under certain circumstances, we merely express its mode of action, and call it, its law. We shall not enter fully into this question of law, but some day we will invite Prof. Yag to dinner, and let you hear him on, as he terms them, "the birth, life, death and annihilation of what is commonly called Law."

Now, Jubal, so far as we have gone, all these reasonings do not affect nor conflict with the faith of the Christian Philosopher, who is not obliged to believe in any particular mode or manner of creation. He is at liberty to investigate and endeavor to discover God's mode of creation, but, as a Christian believer is required only to believe, that whatever the mode, it is God's mode.

We have said that a law can affect that only for which it is a law. In the intelligent order, all law is a volition of the will of

a Supreme power, who formulates and decrees what these laws shall affect. In the unintelligent order, matter acts in obedience to forces, which forces can affect only those things for which they *are* forces or laws. Thus, we Christian Philosophers say: that when God imposed laws *on* matter, He designed that each law should affect that only for which He designed it. It is, therefore, a fundamental principle established in nature, that one cannot do that which is beyond its nature; one cannot give that which it has not to give. Thus, fire can give heat to water, because it has it itself; but water cannot give heat to fire, because it has it not. The law of motion cannot give rest, nor that of attraction give repulsion. Neither can the force or law of gravity ever move a planet. Why is this so? Because one cannot do that which is beyond its nature.

Jubal, the trouble with you philosophers is, that after laying down your premises, you do not carry them to their ultimate logical conclusions. Your foundation being the theory of the self-existence of matter and force; and finding the existence of a wonderful visible universe, in order to build up your edifice, you attribute the construction of this universe to the work of an unintelligent, blind force, acting *in* this matter. In doing so, you endow this force with the power of Omnipotence, self-existing in a self-existing fiery vapor, which filled up equally full, the whole universe; having no space for the vapor to move or act in; with no time, no motion, no distance, no bodies, and in the proper sense of the term, no law; but one infinite, eternal, inanimate mass of Something.

After asserting a No-beginning of life or anything, and denying a primal cause, you are constantly producing being from not-being. All your evolving, transmuting and modifying, is nothing more than bringing being from not-being; thus denying your premises. Commencing with a fiery vapor, you evolve worlds like gigantic drops of melted metal. You bring into existence cold. You cool your world. You bring into existence water, and in this water, by the heat from a hot world, you bring into existence a living thing—an animalcule. You then evolve transmute, develop, and modify this infinitisemal atom of living matter, until you bring into existence a mammoth, and all done by a law which did not exist prior to the matter out of which this

mammoth is formed, and which matter, besides, was once a fiery-gas vapor. Yet, in the same breath, you say that "nothing is really produced in the living world; that all organisms pre-existed, were pre-formed, whole and entire in a sensible form from all eternity." Remember, that to evolve is not to cause, neither is substitution causation. But we are not discussing Evolution of Species now.

Whatever you philosophers may say about the thinkable and the unthinkable, we think, that a philosophy is more thinkable which rests on the foundation, even admitting the existence of a Chaos; and if we can be allowed to use the term "Behind," that there existed behind this chaos, an antecedent, an intelligent power, a First, Final Cause, which created, or caused, if you prefer, mutable things which we call Nature, and, in the natural order, impressed upon her the various forces or laws, by which she is governed. "Ordained and decreed," as St. Augustine says:—

"That in the natural order, through the operation of natural causes, all organisms which were created potentially and specifically distinguished in their proper natures, should be subsequently evolved into actual existences at due time and season, when the conditions originally intended and decreed should arise."

This philosophy accounts for the beginning of mutable things and for matable laws to affect them. So, we think, Jubal, that this is a more thinkable probability for the origin of things, than your No-beginning gas-vapor probability.

But, leaving all this aside, and getting back to the immutability of Nature's laws, which we deny, but admit their universality, constancy and uniformity, because if they were not so, we could not judge if such things are done, such results will follow. The whole principle of what we call cause and effect, would be naught, and all phenomena the result of Chance. The rule is constant and can have no exception. When an exception appears to take place, it is simply due to the fact of some other law, by its force, suspending the operation of the first law in the particular case. Therefore, when we find a phenomenon, the existence of which we can know only from the testimony of our senses, which appears to us as an exception to the rule, it is simply because we

have not gained, either directly or indirectly, through the senses the knowledge to perceive the rule.

While the logical conclusion from a No-beginning premises must be that no change can take place in nature, because change means a beginning. All your philosophical works are made up of efforts to account for the various changes which have, and are taking place around us. Mr. Spencer's "Synthetic Philosophy," and the works of Mr. Darwin, evidence these efforts. Change is a transition from not-being to being. Whatever is changed is in another way than it was before the change. No thing can change without a cause. Therefore, after denying causation, when these philosophers attempt to account for changes, and say, "It is evident and palpable to our senses that things do change." For the sake of the argument, like Skepticus, we ask: How do they know? As change involves something new, when seeming changes take place in things. How do they *know* that something *new* appears?

Remember, when we speak of a *thing*, we mean any existing entity, be it an atom or a world, force, attraction, repulsion, heat, cold, light, life, in fact, all phenomena in nature. We will quote your own argument, Jubal, on Change.

"All things are virtually *in* the matter, and that the new state only adds a new form. But, does this new form, as such, involve something *new* in reality? Either it does or it does not. If it does not, there is no change. If it does, it was either contained in the matter or not contained in it. If contained in it, there is no change. If not contained in it, whence does it come? Not from nothing? Not from itself? Matter can no more change itself, than it can make itself."

Then, there must exist some external powers. These powers we philosophers say are those certain forces or laws which God Impressed *on* nature, and to which all matter must conform. No philosopher pretends to say that inert matter possesses intrinsically the law of motion. This law, be what it may, or whence it came, is extrinsic, and *affects* matter only. Like all law, it *effects* nothing, *causes* nothing, *produces* nothing. Should it be said, that "law causes, and produces effects by producing motion of matter;" this is merely saying that motion causes, or produces motion. Matter must exist before motion, as without matter there can be no motion. Admitting that force or

law produces motion, effects changes *in* matter, that instant, a beginning is admitted, and destroys the Self-existence Theory.

Should it again be asserted, that "our senses evidence to us that things do change," again, like Skepticus, we ask, How do we *know?* It needs no philosopher to tell us that our senses are unreliable. If we look at the stars, they seem to be as small as money pieces; but mathematical proofs convince us that they are larger than the earth. Thus our reason rejects the evidence of our senses. Let us listen to the Arabian philosopher, Algazzali. After testing the reliability of the senses as a means of arriving at a knowledge of the truth of things, he rejects them, and says:

"I said to myself, 'my aim is simply to know the truth of things.' I abandoned the senses therefore, having no confidence in them. 'But, perhaps,' said I, 'there is no assurance but in the notions of reason; that is to say, first principles, as that ten is more than three; the same thing cannot have been created, and yet have existed, from all eternity; to exist and not exist at the same time, is impossible.'

"Upon this the senses replied: 'What assurance have you that your confidence in reason is not of the same nature as your confidence was in us? When you relied on us, reason stepped in and gave us the lie; had not reason been there, you would have continued to rely on us. Well, may there not exist some other judge superior to reason, who, if he appeard, would refute the judgments of reason in the same way that reason refutes us? The non-appearance of such a judge, is no proof of his non-existence.'

"I strove in vain to answer this objection, and my difficulties increased when I came to reflect on sleep. I said to myself, 'During sleep you give to visions a reality and consistence, and you have no suspicion of their untruth. On awakening, you are made aware that they were nothing but visions. What assurance have you that all you feel and know when you are awake does actually exist? It is all true as respects your condition at this moment; but it is nevertheless possible that another condition should present itself which should be to your awakened state, that to your awakened state, is now to you sleep; so that, as respects this higher condition, your waking is but sleep.'"

Prof. Draper, from whom we have taken this, and who is one of your kind of philosophers, says: "It would not be possible to find in any European work, a clearer statement of the skepti-

cism to which philosophy leads us than what is thus given by this Arabian." After the Arab's failure to find a criterion for truth by philosophizing, let us see what this wise and sincere Mohammedan did. He says:

"Reflecting on my situation, I found myself bound to this world by a thousand ties; temptations assailing me on all sides. I then examined my actions. I saw that all my efforts were directed toward the acquisition of glory to myself. I saw myself given up to unimportant sciences, all useless in this world. I renounced philosophy, therefore; distributed my wealth; left Bagdad, and retired into the desert, where, in the solitary struggle with my soul, combating my passions and exercising myself in the purification of my heart, and in preparation for the other world."

Go you, then, you philosophers, and follow the example set by Algazzali; Distribute to the winds your wealth of presumption; leave your Bagdads of arrogance; purify and humble your hearts; prepare yourselves for that other world which you so confidently deny in this, and in the solitude of your retirement, meditate upon the words, What am I? Whence came I? And ask yourselves the appalling question, Whither go I? Reflect upon the

Oneness in Nature.

Upon the individuality of all things, from an atom to a world, from a world to a universe, from a universe to an infinity, up to an Eternal One—One God. Reflect, that amidst the universality of being, thou standest alone. "Thou wast alone at the time of thy birth. Thou wilt be alone at the moment of thy death. Alone thou must answer as the bar of the inexorable judge." Reflect upon the Self, the *Ego*, the *Me;* upon the utter isolation and solitude of each individuality. Reflect, that in the intelligent order, the *me* only knows that it *is*, from its inward sense attesting to the certainty of its own identity, and only *of* itself, and *for* itself. Each individual is absolutely incapable of knowing any feelings outside itself. From its own feelings, it only *infers* that others feel. Thus, although the *me* may possess within itself a certainty of its own identity, it has no certainty of the existence of any phenomenon outside itself, except directly or indirectly, through the testimony of the senses. The external world in relation to the *me* is only an extended being which affects it. The rep-

resentations of all phenomena are only such as are determined and judged of by each identical *me*. Thus, whatever value we may place upon the testimony of the senses as a means of arriving at an ultimate truth, only as it affects the *me* can it even infer the existence of any phenomenon.

Thus the *me*, having no knowlede of any feelings but its own. If it has never experienced through the sense of touch the phenomenon of heat, it knows not that it will burn, although its sense of sight informs it that that element consumes. Shut out the visible universe; destroy the sense of feeling, and the remaining senses in the *me* can inform it only that it exists in, what to it is a void. It could hear the thunder roll, but know not of the lightning's flash; and if, in its helpless groping to seek and satisfy its needs and live, it should smell the odor of the upas-tree or eat the berries of the deadly nightshade; it would die—shrink back to that invisibility whence it came, and then Jubal, to know the "Whither."

To know that Whither, has been the universal longing of the human mind. Like a nightmare, upon the human soul there sits a hideous spectre, baffling all its efforts to shake it off that it may awaken to a knowledge of that Whither, and this spectre will so sit until the hand of death awakens the *me* into everlasting life, and to a knowledge of its destiny.

Man's efforts to peer within the portals of that dread future is the groping of the sightless. In its struggles to tear aside the veil which shrouds the face of destiny, philosophy becomes imbecility, and its drivelings, those of idiocy. We are, we live, we die; and after, you philosophers say, We are not. Ah! not, not, Jubal? That which *is* must forever *be*. No change, no choice exists, and chance cannot annihilate. Overwhelming, crushing, agonizing thought, that I, this identical *me*, *for* itself is all. The unimaginable universe, the universal being of all things is naught to the *me*. Outside itself as *for* itself, there is no other *me*; no universe; no thing; no time Amid a universality of being, it stands alone in its isolation. As affecting *its* destiny, these beings are as if they were not. Its existing *oneness* is *in* and *of* and *for* itself. Its senses tell it that it *is*, and its reason that that it *was* and must forever *be*; and when thrown back upon itself in thought, it stands appalled

upon the brink of an abyss which yawns before it, and into which it *knows* it will be plunged, and asks itself, "to what?" And its reason answers. "Not to non-existence, nor changed into another *me*. Existences will be eternal and immortal."

And while this frightful truth is burning in its soul, the *me* trembles on the brink of that abyss, and tries to pierce its fathomless depths. While gazing into its unutterable gloom, it broods and agonizes. In vain it calls upon philosophy to come to its aid. In vain it tries to hide itself within itself; and in its mental agony, it shrieks to the mountains of Oblivion to cover it, and cries to the waters of Lethe to overwhelm it. In the terror of its desperation it would murder itself, if this would be an end, and it contemplates the act. But Ah! There rises up an ever-living, frightful spectre—the phantom of itself—the *me*, which points its unerring finger to an Eternal; and the *me* shrinks back prostrate upon itself, and tries to hide its face from the Inevitable. It writhes and moans in its despair, and in the agonies of its mental fears, wishes in its soul that it had never *been*. Baffled and exhausted in its puny mental efforts to pierce the inscrutableness of itself, it looks outside itself for aid. It opens a long closed window in its soul. A transcendent flood of light streams in. It looks above. A star is shining; the same which rose and shone in Bethlehem, and it sees inscribed thereon, in letters of eternal ever-living light, these triune words:

"FAITH, HOPE, TRUST." And while their undying rays are struggling to dissipate the darkness of its soul, the *me* rises in its philosophic arrogance; stamps out the living spark, and asks: "In what?"

The spirit moves upon the waters. The undying waves of Faith and Hope are swelling in its breast. Upon the gentle winds of love is borne the voice of the ages, which whispers to its soul. "In ME."

Down, down it sinks. The rushing tide of memory fills up the measure of its past, and the *me* in the anguish of its illumined soul, cries aloud for mercy.

The spirit moves upon the waters. The heaving waves of fear and doubt are calmed. Faith and Hope fill up the depths within its soul, as pardon for the past is borne on angel's wings.

Up! up, it rises. Its new-born life, mighty in the strength of Trust, stands unappalled. From out its soul, there gushes forth a stream of thanks, and all is peace.

Young gentlemen, we thank you for your patient attention to our remarks, and hope that they may be of some profit and assistance to you in your studies of the most difficult of all subjects, Philosophy.

Prof. Jubal Continues his Lecture.

Young gentlemen, notwithstanding much of what Prof. Credo has said is not in harmony with our views, still, we, and doubtless you, have been interested and instructed. During his remarks, the Prof. has presented some strong arguments, which, from a premiss of Self-existence, have assisted us in proving that the logical conclusions must be, that in nature there are no things as cause and effect, in the sense as commonly understood. He has proved conclusively, that if cause and effect exist, they must have existed eternally. Should these conclusions be correct, then, on the theory, those things which we call Cause and Effect, are are mere illusions.

Most of us modern philosophers are "Agnostics" or "Know-nothings," meaning, thereby, that nothing whatever can be really and absolutely known. That we know nothing but appearances. Therefore, as absolute, primal cause has never appeared to us, we do not know, *absoluta*, that it exist. We imagine that we see effects, but until we *know* the cause, we cannot *know* that they are effects. We see bodies changing their position, and attribute their motion to an element we call Force, but as force itself has never appeared, we do not know that such an element absolutely exists. And, as an absolute beginning of anything has never yet appeared, we therefore, do not *know* that anything ever did begin. It is from these facts that the theory of Self-existence rests on the foundation, that nothing ever did begin, and from which we have endeavored to deduce the conclusion that, "Whatever Is always was."

No doubt, gentlemen, you have observed, that while lecturing, Prof. Credo always indulges in reading us philosophers a lesson in theology, and talks about "faith, hope, trust, and angels' wings." This is a pardonable weakness in the Professor,

but philosophy has nothing to do with faith, still, while it hopes to discover the truth of things, it takes nothing on trust. Whatever may be borne on angels' wings, philosophy, and particularly our Agnostic philosophy, demands the appearance of these angels in proof of their existence.

We were much amused at the manner in which Prof. Credo ordered us philosophers off into a metaphorical desert to meditate. And because an old foolish Arab, who had philosophized so deeply as to come to the conclusion that when he was awake he may be only sleeping; and even if he was awake, could not rely on his senses to learn the truth of anything; also, having more money than brains, lost what few he had by distributing his wealth and retiring into the desert to consult, we suppose, the ostriches and camels, as to whether or not the truth of things can ever be found, the Professor therefore, orders us philosophers to go and do likewise, presuming, of course, that philosophers have wealth to distribute, and need a desert in which to meditate on that "whither:" that future which never *is* but is always *going* to be.

The first part of the Arab's example we are unable to follow, not having. even in imagination, any wealth to distribute. Should we follow the last part, retire and meditate, until the future appeared to us, we should, like the Arab, have grave doubts whether or not we ourselves were awake.

Prof. Jubal Gives The Source From Which Some Philosophers Get The Phenomenon—Life.

Although this is not the place to answer the question, Whence came life? still, *en passant*, we may say, that most of us philosophers get life out of the sun, where it is hot enough to turn this earth into a gaseous vapor, such as it was before Prof. Kant succeeded in getting it into a gigantic drop of melted metal. There can be no doubt but that it must be rather too warm for comfort in the sun, because, Prof. Helmholtz tells us:

"If our Earth were by a sudden shock brought to a rest in her orbit, a quantity of heat would be generated equal to that produced by the combustion of fourteen such Earths of solid coal, and the mass of the Earth would be heated 11,200 degrees. If, then, the Earth after having been brought to a rest, should fall into the sun, which, of course, would be the case, the quantity of

heat developed by the shock, would be four hundred times greater still."

Now, remember, that science has settled, that life cannot exist in a temperature above boiling water, or 212° Fahrenheit; yet Professors Haeckel, Huxley, Draper and others say, that "life comes from the sun." Prof. Huxley in his "Fragments of Science," says:—

"At our present moment, all our Philosophy, all our Poetry, all our Science and all our Art—Plato, Shakespeare, Newton and Raphael—are potential in the fires of the sun."

So, then, if our Earth, after her long journeyings were to take a rest, only for an instant, she would be 11,200 degrees hotter than she is at present. How hot this would feel, or how hot she would be when she fell into the sun, we cannot say, having forgotten our multiplication table; but we can say, that if a poet or a painter can live there, even in a potential state of existence, we reckon, we self-existent philosophers could get along, *provided*, that Mr. Spencer's definition of life, and how maintained, be correct, which is, that we keep our "internal relations in a continuous adjustment with our external relations or environment."

At the risk of anticipating a little, and for the purpose of showing you how elastic our philosophy is in the hands of a good philosopher, we will give you one instance. Remember, that life is an existing something, and, as it had No-beginning, therefore, must have always been somewhere; also, that a thing must be in a place before it can come from it; and remembering what Huxley says about Plato and Newton, you can see how we can stretch that elastic cord.

Prof. Draper, in one portion of his works tells us, that "life comes from the sun, the dispenser of light and life," but when he comes to describe the conditions under which life is possible, he says, "Life is impossible in worlds of heat or vapor." Again, in another place, when describing the sun, he says: "the sun is an incandescent fog or gas; an incandescent liquid, or, perhaps, a solid, surrounded by a fiery fluid." Therefore, according to Prof. Draper, life cannot come from the sun, beeause it cannot exist in it; neither could it have come from any other planet, for, as Huxley says: "all stellar bodies are or have been gaseous."

Getting back, gentlemen, for a moment, to that *when*. "When the process of evolution first began; when a mutual gravitation began to approximate the atoms; when the nebula began to concentrate upon itself, etc." We philosophers do not pretend to use the infinitesimal calculus for the purpose of ascertaining how long ago it was when the molecules commenced or finished aggregating, nor the length of time it took Force to get together the peculiar kinds of molecules which form our earth. But we put the period so far back, so many aeons of milliards of millions of cycles of ages, that an infinite calculus could scarcely get the answer; but still, we do figure out, that not one atom has ever been added or one taken away from the original existing mass. Now, you may think this a more difficult task than figuring on the *time* question; because it takes two hundred million million million of molecules in a soap-bubble to weigh a *milligramme;* besides taking two or more atoms to form a molecule; and, as according to Leibnitz, an atom is only an infinitesimal part of an element, you would naturally conclude that it must have used up a great deal of slate-pencil to figure out if, at any particular time, some atoms had not gotten out of the filled up universe and wandered off, or that some outsiders may not have gotten in, and filled a trifle fuller than full.

There is another thing we figure out, that not the most infinitesimal atom, or molecule, can ever change or lose its fundamental essence, nor gain another. For, as Prof. Maxwell says: "Since the time when nature first began, none of the processes of nature have produced the slightest change in the properties of any molecule." You must remember this fact when we come to explain the seeming changes of individual organisms by Evolution and Natural Selection.

The science of physics tells us, that in nature there is no such thing as a vacuum; that no two objects ever touch each other. Blair says: "Repulsion is a force which extends round all bodies and prevents them from coming together." Boscovich says: "There is no such thing as contact between two bodies." So you see, if this were not so, all things would be close together like they were in that filled universe. Therefore, what we call space is a reality, a body, a *something* possessing properties. If it was a vacuum, or a *no*-thing, contiguity would take

place, and the world, the sun, the moon, and the stars, in fact, the whole matter of the universe would all be in one lump. There would be but one infinite, impenetrable body, which is the very essence of Number in nature, as there are no such things in nature as 2, 3, or 50; no number, absolute, but the unit—One. Of this we shall speak hereafter.

Young gentlemen, so far, we have been laying the foundation of our lectures only; and as the molecule is not only the most important thing in that foundation, but is the absolute necessary thing—for without it we could not raise the superstructure of Natural Philosaphy—therefore, you must learn, not *what* it is; this we shall never learn on this earth, and if we reach Prof. Credo's heaven, we shall not care, but you must learn about how large it is, and what we philosophers can do with it. Because, when we come to Evolution and Origin of Species; to forming organisms; to gathering the "Mind stuff" molecules from the film which forms on the belly of the jelly-fish, and to tracing man back through the monkey, down and beyond the molecules which form the "Life-matter" of this jelly-fish; down to a living thing so small that the microscope has not yet revealed it, you will then be able to comprehend how you were once potential in the fires of the sun; how the fires of the sun were once potential in the molecule; the molecule potential in the atom, and how the atom, supposed to be actual, was the primordial ultimate from which has been produced our visible universe.

What is a Molecule?

Should we ask a scientific chemist what he understands by a *molecule*, he will tell us, that it is the smallest part of a body which can physically exist by itself. Should we ask him what he means by the term, *atom*, he will reply, that it is the smallest quantity of an element or simple body which can enter into a compound or be driven from it. So we will commence with the atom, as it comes nearer to the *alpha* of things, thus getting behind Kant's gas, as this was formed of molecules. Leibnitz tells us, that an "atom is only an infinitesimal *part* of an element, and combined constitutes a molecule by chemical force, each being different from his neighbor." We must repeat a portion of what Prof. Maxwell has already told us.

"Molecules are physically independent of each other. It takes two million of molecules to form the smallest living object that can be seen under the microscope. Molecules are never born, and they never die. They had no progenitors, and they leave no offspring. They differ from each other, each kind being assorted into sets."

So we find, gentlemen, that these molecules are very small; of different kinds; were never born, never die, and never change; and it is by the aggregation of each different kind that forms the various objects, organic and inorganic, which we find in nature. So then, there exists no thing however large or however small, but what is formed of molecules. And science tells us, that the all-pervading ether, which fills the so-called space, is formed of molecules.

In regard to the size of a molecule, Loschmidt and Sir William Thomson say:

"From considerations derived from the thickness of soap-bubbles, about two million of molecules of hydrogen in a row would occupy the space of a *millimetre;* and two hundred million million million would weigh a *milligramme.* The average distance between contiguous molecules is less than the hundredth millionth and greater than the two thousand millionth of a *centimetre.*"

Young gentlemen, there is great food for reflection in our late discoveries in science; and we cannot help moralizing on the fact, that we, each one of us, came from one of Prof. Maxwell's little objects formed of two or more million of molecules; and ultimately from even a smaller thing than the molecule. So we have to get back still further, back to the corpuscles, which is smaller than the atom; for La-Sage says:

"Corpuscles are ultramundane, and fly with a velocity millions of times faster than anything in the universe. Those which are stopped by the sun and the earth, are few compared to the number which pass straight through the earth and the sun without striking a single molecule."

You ask us. "Do we think that La-Sage could see these corpuscles going *straight* through the sun and the earth." Of course we do. La-Sage was a philosopher. When a man gets to philosophizing and finds out the elasticity of the principles of philosophy, and the microscopic power of its vision, he can stretch his imagination, if nothing else, and see whatever he de-

sires in order to give consistency and an air of probability to his theory.

When you become philosophers, you may, perhaps, be able to see the sun going *crooked* through a corpuscle and not hit his head against an "infinitesimal part of an element."

At any rate, we have to get back to the corpuscle, and even this will not do. The reason of man will not allow him to stop here. The mind will still ask questions, and want to know, What made the corpuscle? And this is one of the many gulps between the man and the monkey. The man wants to know how the milk got in the cocoa-nut; but the monkey knows that he wants the milk which is in the cocoa-nut.

But now we come to reflect; we think that we were mistaken about the size of the corpuscle. It cannot be so small as the atom, as it can be seen; at least, La-Sage thinks he saw it going through the sun. The atom never has been seen, and we reckon never will be; particularly, if, as Leibnitz says, "it is but an infinitesimal part of an element." This atom must be a singular something in nature, so as to be, to exist, and not have a top, bottom, and sides to it, yet still can form molecules, which have all these conditions. Yet, it may be that Leibnitz was mistaken, like we were about the corpuscle; though it is rarely that we philosophers make a mistake. We know the possible and the impossible. We know that it is possible for the universe to have either Self-existed, or Self-created itself, and the impossible for any external agent or Supreme Intelligence to have created it. But thinking of the velocity of these corpucles, be what they may, we wish we had a couple of them, that we might raise a colt, then, wouldn't we make away with the stakes on the race track?

Again, when we come to reflect how small our generators were, we feel ashamed of ourselves and wish we were back again whence we started, so that we could wriggle around in some future soap-bubble; see the future philosophers squinting through their more improved patent spy-glasses, and hear them count, "Two million of us in a row." Why! this is more than there are eggs in a cod-fish. Ah! young gentlemen, "dis knowledge oughter take de proud outer de——mble," as old Ezekial Congo, who preaches down at the cross of roads said, when expatiating on

the vanity of earthly things, "en make 'em cry out in de wurds er de prophet, *weni, widi, weci*, wanity er wanity, all ez Rubicon, er as de Desdemon'n prophet—de Moor ob Wenice—'terprets it, "I cum ! I seed ! I got de bes' er de fight !"

You can now begin to understand the great importance the molecule is to philosophy. Without it, or something else, we could never have imagined a cosmos and made the world. That great philosopher, Bob Bangyoursoul, saw with his obtuse power of judging of supposed causes from effects, the value of the molecule to sustain our Self-existence Theory, lucidly described this value, in a lecture which he deliverd before the Alumni of the University of Fuegee.

ON THE IMPORTANCE OF THE MOLECULE IN SUSTAINING THE MIGHTY FABRIC OF PHILOSOPHY, ALSO THE PROPER SEASON FOR THE NATIVES TO EAT THEIR OLD WOMEN.

We will read to you what Mr. Bangyoursoul said on that occasion :

"My learned Fuegians, should we non-entity the atom, anhihilate the molecule, or obliterate the nebula, we should not only take the pillars from beneath the temple of Philosphy, but, like that mythical long-haired Sampson, extract the pillows from out Delilah's resting place ; and like that fabulous, fighting musician, Joshua, blow the horns which would shake down the walls of Philosophy.

"Then my learned Fuegians, when reason, proof, guessing, theory, and taking for granted are driven from their hiding places, Philosophy will have no supposing chair to stand up on, nor annihilated bed to lie down on. She will no more bask in the sun of dependent liberty, and no more roam through the happy groves of skeptical certainty. All gone ! All gone ! We philosophers will be driven to the mountains of Genesis ; have to consort with Moses, and, from the table of his laws, eat the bread of Faith. O, bitter pill ! O, transplanted humiliation ! to be obliged to accept all the laws, including the Revelations ! O, the ecstatic agony ! O, the slavish emancipation ! O, the independent necessity of having to believe SOMETHING ! ! !

"My refined and cultivated Fuegians. You, who are the evidences of nature's handywork. Ye ou, who are the living witnesses to what perfection the min pic.d reason, and, I may add, the habits of man can attain ing You, who, casting aside with

scorn, a Faith you never heard of. You, who, clad in nature's habiliments, possessing not even a breech-clout of belief, can, with the sages of old, declare, if you had a beginning, you don't know it; and with a confidence begotten of philosophical indifference, affirm: If there is never to be an end, you don't care."

"O, happy and philosophic race! O, unminders of a doubtful future! O, enjoyers of a glorious present! Would that I had been been born one among you, that I might luxuriate on my grandmother, and gorge upon my mother-in-law.*

"When famine stalks abroad, when the molecules of the *muscular membranous reservoir*, called the stomach, are oscillating and running along lines of least resistence, thus evolving hunger, how happy the situation; how consoling the thought, that you have an aged mother. O, the perfection of nature's laws! O, the agonizing bliss to live in accordance with these laws! O, the peace of mind it brings to know, that when narture demands, the demand can be satisfied with widow's tender steaks.

"In the Illinoian darkness of my natal land, there are no such things as tender widows, as from their long years in wrestling to control the hearth, domestic, they have become tougher than the hide which holds the carcase of the rhinoceros bull.

"My unbelieving Fuegians. In my Illinoin home, the natives believe, they have a faith, a blind, enduring faith, and, in compliance with one of its unnatural dogmas, they love and honor their mothers, instead of eating them. Then my blessed Fuegians, why send ye not your legal sages to the Capitolian Halls of Justice in my natal land, and, like me, with an eloquence which a fee secured inspires, portray to minds convinced by golden eagles, as in their 'Star Route' course they circle through the Federal heavens, screaming, that robbery, in a 'Mail-clad' client, is a virtue.

"Why send ye not your philosophic savants on a mission to my 'Sucker' home, and to Chicagoin gatherings of my tribe, like me, lecture at four bits a head?

"What the pecuniary result would be, let the compulsory de-

* The natives of Terre del Fuego, in times of famine eat their old women.

mand for payment of gas and hall rent in advance; let my sad expe—pe—pe—pe— ! !"

The reporter who, on his shirt-cuff, took down this address, says: "At this point Mr. Bangyoursoul was so overcome, as the memory of his past financial experience flashed across his clear but opaque sensorium, as to what that result might be, that upon grasping the hand of his old and tried friend NOTHING; and in a voice trembling with imbibing emotion, said: 'Well, I'll take a little sugar and a squirt of peppermint in mine.'"

Gentlemen, before we close our lecture for the day, as Prof. Credo is still here, he may wish to make some few more remarks. If so, we have no doubt you would like to hear him.

PROF. CREDO'S OPINION OF THE PHILOSOPHY OF THE BANGYOURSOUL SCHOOL.

PROF. CREDO—Yes, Prof. Jubal and my young friends, on that lecture of Mr. Bob Bangyoursoul, we desire to say, that we do not know whether or not the Fuegians in casting aside with scorn, a faith they never heard of, or while gorging on their mothers-in-law, are happier than Mr. Bangyoursoul is in casting aside with hate, a faith he has heard of, while he gorges on the profits gained by misrepresenting it. But we do know, that philosophers of the Bangyoursoul school, like many others, are fearful that they will yet be compelled to accept the Mosaic account of Creation.

The favorite mode of these philosophers, when dealing with the Bible, is to misquote it, and put such construction on its texts as to falsify them. For example: They say, that had Joshua known astronomy he would not have attempted to command the sun to stand still, at the same time knowing, as they do, that the Bible does not say, nor can the texts be twisted to mean, that Joshua believed or acted as though he possessed the power to stop the sun. Had Joshua known astronomy, it would have been to him a greater evidence of the power of Him who made the sun; the forces or laws by which it is controlled, and of the power to supersede or suspend the action of these laws.

We need not point out to you how little we know of the possible or of the impossible, even in finite things, but we are able to conceive of the impossibility for a finite creature to

measure the powers of the Infinite. Although Laplace says of his own nebular hypothesis: The chances in its favor of being a true explanation of the origin of the universe, are as one to many millions against it. Yet, these philosophers have gone to work with a bushel or two of molecules and made the sun; got up a generating machine to set it on fire; a revolving machine to set it a-going; and now, because they cannot stop it, therefore there exists no power which can.

We were much amused on last Sunday at the way in which preacher Congo assailed these philosophers, and will, in his own words, endeavor to repeat what he said.

"Bredder'n, deze filos'fers sez dat Lijah coodn't git up ter hebben en de chariot er fire, Kaze it 'flicks wid grabity, en sides dat, dey sez, dat dar's no up ner no down in de space; dat 'bove and b'low ez only a idea dat de 'mag'nation makes by de compar'son. My bredder'n, dis mout be troo now, but et warn't et de time er Lijah; fer he bin done gone ter hebben mos' five tousand years, fo' dat English Newton Man made de grabity, Konsequently, Lijah didn't 'quire no grabity. Why deze filos'fers, dey didn't git de worl' started 'volvin' till dat 'Talian organ-grinder, Galileo, gib hit a boost, en he cum mity nigh gwine arter Lijah for doin' on't. De ole-time filos'fers use ter say, dat dis yearth wuz a big flat plantashun, 'vided off by de ribbers, natur's fences; but dey nebber sed wat de water floated on. Dey nebber gib darsel's 'way on dat pint, en you'll allus fine, bredder'n, w'en deze las'-week-day-'fore-yes'day filos'fers git corner'd dat a-way, dey gits out er de gyrden knot by 'ferrin de matter ter de 'Ontinkable, Onkno'able.'

"Dar's dat Darwin man. He'd a mity hard time fin'in' out how de milk got en de cocoa-nut, till he got ter he second wolum on de mammals; en den he foun' dat 'twuz de she monkeys wat drapped it in. He didn't hab much trouble stretch'n' de neck er de giraffe, fer, like doze spirit'al wimmen, he foun' de 'lastic 'finity; only Darwin's 'lastic 'finity wuz gum 'lastic, but de wimmens ez 'lastic gums. He nebber did clarly sho' wat druve en de fo'-legs er de kangaroo. He got de hine legs all rite, kaze dey wuz ter boost 'im up de hill, but he had a debble ob a time ter git 'im down agin; en we don't kno' ef

he ebber did git 'im down. We reckon not. He's up dar yit, en keeps a gwine up.

"Now, bredder'n, deze filos'fers sez, dat we duzn't all 'gree 'bout de rite road ter trabble on de way ter de Manshun. We kno's ve'y well dat all de folks don't 'gree 'zactly 'bout wat de bible *do* say, but dat's kaze dey don't git clar down ter de prim'-tive rock ob ages underly'n de sebberal straters ob teological sense, dey take der own way 'bout de matter, en don't listen ter doze wat de Lor' 'pinted ter 'splane ter de people wat de bible duz meen. But yit, wid all dat, dar's heep mo' people 'greein' 'bout wat de bible duz say, dan dar ez 'mong filos'fers wat ez de true filos'fy."

We think, Jubal, that Old Congo is right on the last proposition, for as you have already shown, that in the Historical strata there has not yet been found any two philosophical fossils alike; and besides, neither Evolution nor Natural Selection has, as yet, produced any two alike. If the minds of any two of this kind of philosophers had ever been found to agree, these minds would be a sort of intellectual monstrosities. For while nature, in her freaks, has often produced monstrosities, she has never so far forgotten herself as to produce any two such monsters alike. The reason may be, as Kant says, that "the basis of our cognitions is the principle of Contradiction." This is true, because this principle is the law of all intelligence. Without this principle we could not even think nor speak; all certainty, all truth and all knowledge would be at an end; we should be in frightful mental darkness, and all intellectual light would be extinguished. This is why this German philosopher, Kant, says:

"It is impossible for the same thing to be and not to be at the same time and in the same place, as the principle of Contradiction is the condition *sine qua non* of human cognition."

Now, the logical essence of the principle involved in the proposition is, that a Predicate which is opposed to a Subject does not belong to it. This is what Kant meant, but he did not say so; and ever since the time of Democritus down to Prof. Bunsby, philosophers have, too often, not explained what they meant. Still, Kant is correct as to the principle of contradiction, particularly when applied to philosophers; for they never yet elucidated their opinions without indulging in the

spirit of contradiction; and they never will, till the new fangled system of Evolution, as taught by some of them, has had time to evolute and evolve the brain of man to such perfection and power of cognition as to enable him to so adjust the "strengths of his inner cohesions between his psychical state as to be proportionate to the persistence of his outer relations symbolized;" this is what Mr. Spencer in his work on "Psychology" tells us "is the law of intelligence." Also, for the brain of man to be able to comprehend what he tells us in his "Biology," that "the broadest and most complete definition of Life will be, *the continuous adjustment of internal relations to external relations.*"

PROF. JUBAL—Nothwithstanding, Prof. Credo, there exists a contradictory spirit among philosophers—which we regret—but this arises from the very nature of philosophizing. Still, they are not one wit less contradictory than are doctors and historians. Different minds read the book of nature in different ways, but all philosophers are seeking for the truth, which lies hidden somewhere in the manifold pages of nature's grand encyclopedia.

While nature seems to have locked up the secret of her origin and her laws, and man will, probably, not find the key or discover the essence of things, the ultimate, until his brain has evolved far beyond its present power of comprehension. Still, so far as we can judge, however much we may differ as to her origin, any one of our several ways of accounting for the origin of Life, the World and her visible manifestations is, as Mr. Spencer says: "More reasonable, and confessedly more thinkable than that of Creation by a external agency."

PROF. CREDO—Yes, Jubal, that statement of Mr. Spencer's may be true to a man possessed of a true philosophical mind; to one who has gone down deep enough into the science; to the depth of the unlimited abyss of philosophizing which Pyrrho the Skeptic reached. He sank to such a depth that he has enabled to philosophize himself into a non-entity. Now, very few philosophers have succeeded in accomplishing this. You modern dreamers could not have fooled Skepticus with your protoplasm, sun, and internal relations, nor even with existence. He sought for nature's truth till he found there was no such thing as truth,

nor any place in which it could be found, nor anyone to find it; and further, that it was not even an illusion; for, if an illusion, we could not know or even imagine it to be an illusion; because the possibility of imagining an illusion, is really imagining the illusion itself. While absolute skepticism cannot be even believed—since to believe it, would be *ipso facto*, to deny it by asserting the certainty—which is absurd. Still, Skepticus got so deep down into the abyss of doubt, that he found *Nothing* to be the ultimate.

Even Democritus, nothwithstanding he found the atoms and said: "The world was formed by their fortuitous combinations," but when he became metaphysical, he said: "There is nothing true; and if there is, we do not *know* it. We know nothing, not even if there is anything to know." But still he kept on trying, till at last he found where truth was, but could not get at it. "Truth," he says, "lies hidden in the bottom of the well." And ever since that time, philosophers, in trying to get it out, have fallen into such pits of wordy ink that all the waters of a metaphorical ocean cannot wash them clean again.

While we agree in but few things with you philosophers, we do, as we have already stated, agree with Prof. Kant, in regard to the principle of contradiction. But whether or not a thing can be and not be at the same time, in the same place there is a difference of opinion among philosophers even about this.

Two Things can Be in the Same Place at the Same Time. A Thing can Be before it Was.

Prof. Maxwell, says: "It is a vulgar error that two bodies cannot co-exist in the same place at the same time," and among others, instances the union of oxygen and hydrogen, forming water.

As to a thing existing before it really did. The great Doctor of the Schools, St. Thomas of Aquin, when speaking of intrinsic or Absolute Possibility. and extrinsic Possibility or Relative, says:

"A thing is said to be absolutely either possible or impossible, on acconnt of the relation of the terms to each other. It is said to be absolutely possible, forasmuch as there is no repugnance between the Predicate and Subject; as for instance, that *Socrates is seated.* A thing is said be absolutely impossible; foras-

much, as there is a repugnance between the Predicate and the Subject, as for instance, *that man is an ass.*

"Whatever cannot have either the nature of thing and no thing, cannot be possible; and, therefore, that anything should at the same time be and not be, is in itself impossible; because what is at once thing and no thing, is neither thing nor no thing."

In the words that follow, St. Thomas applies the idea of antecedent possibility to the existing universe.

"For it was possible for created Being to have existed before it really did, by the power of that Agent by which it began to be, or by reason of the connection of the terms in which no repugnance is found. It this latter case, it is not called possible in reference to any power. * * * For the predicate *Exists*, is not repugnant to the subject—*The World or Man*, and so it follows that it is not impossible to be, and, consequently, that it is possible for it to have been before it was."

All men understand by merely possible Being, something which is cable of existing, but does not actually exist, and may never exist, yet, its intrinsic possibility to exist would still persist. Therefore, St. Thomas is both logically and metaphysically correct.

But whether or not, Kant, Maxwell and St. Thomas are logically and metaphysically correct. Mr. Spencer is the philosopher to grapple with problems of this nature, and has proved satisfactorily to some of his readers, that

A Structureless Thing Can Be Many Structures At The Same Time In The Same Place.

In his "Biology," Mr. Spencer says:

"The *Amoeba*, a structureless speck of jelly, is *at once all* arm, *all* hands, *all* mouth, *all* intestines, *all* stomach, *all* skin, *all* muscle, *all* limb, and doubtless too, *all* lung." [The italics are ours.]

Jubal, this *Amoeba* is about as difficult to cogonize as that "a thing can be before it was, or that two things can be in the same place at the same time." But if these be logically and metaphysically correct, we see no difficulty whatever in this speck of jelly being *all* and *not* all of those structures *at once*, and still less difficulty do we see, in *all* of its structures being in the same place as the same time that they are somewhere else. And the difficulty would disappear entirely if we admit that it was at the

same time *all lung*, and Mr Spencer says: "there is no doubt about that." Still, these are a great many structural parts for a structureless jelly-fish to possess at the same time that it is only *one* of them.

But let us dissect and analyze this speck of jelly—the size of this speck matters not—and see if it might not be *all* speculation or one of "Allback's porous plasters." Whether it is or not, if this speck of jelly should be afflicted with different troubles in *all* those different parts *at once*, and were to swallow into its *all* stomach a patent pill, *provided*, *always*, that it had a lung and got it *all at once*, that pill would do the business; for what a patent pill cannot cure, a speck of jelly cannot be troubled with.

To understand how this *Amoeba* can be *all* these parts *at once* we must in the first place understand what is meant by *one* and *all* and *once* and *time* and *place*.

Since One or unity, being both odd and even, it must be the very essence of number—of all numbers. All comes from One. One contains the property of even and odd. If One is added to an even number it becomes odd, but if to an odd number, it becomes even; therefore, it never lies. You cannot divide One. It is infinite. If it were finite, it would be divisible. If divisible it would be infinitely divisible. Wonderful state of being! Unaccountable freak of nature! What a consoling thing it is to know, that there exists one thing which never lies; yet, a sorrowful one to know that this same immaculate thing should be the cause of so many lies in others. The simple looking out for number One, has caused more lies, and for the purpose of getting "even," has sent more men to the penitentiary than all other numbers put together. No wonder that One is the essence of all numbers, and that *all* comes from it, and still more wonderful, that it cannot be divided, and thus half lie. Even if it could be divided, it would be but the making of two lies out of one.

So then, in nature, there is no number absolute but the unit One. What we call 2, 5 or 50, the plural and the multiple are but terms given to a mode which we have adopted to save us enumerating so many Ones. The human mind, we were going to add, not even a philosopher's mind, and some of these seem to possess a superhuman power of imagination, can imagine such

a thing as 2 or 5 as a *some thing* of itself, as existing or being of its own essence, a *thing*. For intsance, the sun is one sun. Should you divide it, you have only made another sun, and there would simply be one more sun to count. A molecule is formed of two or more atoms. Cut it in two, and you have only two molecules composed of a lesser number of single atoms. This is the reason why Democritus said: "An atom cannot be cut in two, for then there would be two atoms." That is to say, one more atom, or *one* atom. and one *other* atom.

Mr. John Stuart Mill says: "In some distant planet, the sum of two and two might be five." Prof. John Fisk, speaking of its possibility says:

"It is nevertheless imaginable that somewhere there may be a mode of existence, differing from intelligence upon which numerical limitations like ours would not be binding."

Lamennais writes:

"Who can say that a sixth sense would not disturb the harmony of the others by a contrary impression? On what foundation could he deny it? If we suppose other senses different from those which nature gave us, might not our sensations and our ideas be different? Perhaps a slight modification in our organs would be sufficient to ruin our whole science. Perhaps there are beings so organized that their sensations are wholly opposed to ours, and what is *true* for us is *false* for them, and reciprocally."

Quoting Lamennais, Balmez asks:

"Is there any intrinsical impossibility of an organization different from ours, and an order of sensations different from those which we experience? It seems not; and if this impossibility exists, it is unknown to man."

If it is within possibility, and such beings do exist whose sensations and ideas are so contrary to ours that what is true for them is false for us, then, there can be no criterion for absolute truth. This, of course, would upset Kant's metaphysics, as then a thing can be and not be at the same time, and two and two can make five, inasmuch, that when we utter a falsehood on this planet, that instant we utter that which is a truth on another planet. And if the truth and falsehood are not in the same place, they are at the same instant of time; because truth and falsehood, if there be such, are not limited—not affected by time, as they need no successive changes in finite entites to cause,

what we conceive of as time. Therefore the assertions that heat is cold, round is square, and the sum of two and two make five, can be both true and false at the same instant of time.

Now then, as *all* means *one*, when we say *one* Amoeba, or *one* man, we say and mean *all* of that Amoeba; or that man, irrespective of size, or of how many different kinds of molecules there are aggregated which go to make up one whole. The *all* of any *one* whole, except the atom, which is the primal One, because it takes two or more atoms to make a molecule, is but the aggregation of so many Ones.

Next, *at once* means at *one* time; that is, at that single moment, instantaneously; and *place* means a particular spot or position in space which that *one* can only occupy; while space is *one*, and *all*, at *once*, *one* something, *one* infinity. Now, as we understand these things, we can conceive how this speck of jelly, this Amoeba, can *be* and *not* be *all* these structures in the same place at the same time. To sum up thus. It can, at the same instant, be *at once all one* stomach, *all one* mouth, *all one* skin, *all one* intestine, etc. It can be *all* of every *one* thing at the same instant of *time*, and in the same *place*, that it is *all* of some *other one* thing. To complete the analysis. It can be a *whole* Amoeba, a *whole* arm, a *whole* mouth, a *whole* stomach, a *whole* skin, a *whole* intestine; and we have no doubt, if Mr. Spencer had dissected his speck of jelly more thoroughly, he would have found it also, not only *all lung*, but doubtless too, nothing else *but lung*.

But still, Jubal, upon philosophical grounds, we do not think that either St. Thomas or Mr. Spencer got much the best of Prof. Kant, after all; because there are so many different kinds of philosophy; the science is so elastic; that what we cannot enclose or explain with one philosophy we might with another, and this is the reason why we philosophers can never be cornered. There is always, somewhere, a philosophical hole on the premises into which we can crawl. Of course, our object in philosophizing is, as you say, to discover the truth; but, if in our search we should slip up on the Predicate not agreeing with the Subject; if we cannot reconcile some fact with our hypothesis, we fall back on the conclusion, that "the principle of contradiction is the condition *sine quâ non* of human cogni-

tion." The only way, Jubal, in which we can reconcile the differences which exist among us philosophers is, that when Prof. Kant was philosophizing, he was using Metaphysical or Transcendental Philosophy, which brought his reasonings and logical conclusions from his premises out all correct.

When Mr. Spencer was philosophizing he was using Natural Philosophy, and this brought him out all correct, so the results are, if the *sine quâ non* of one philosophy contradicts the *sine quâ non* of another philosophy, it does not affect the principle of Contradiction which lies at the base of all our philosophizing.

END OF LECTURE ONE.

LECTURE II.

PROF. JUBAL, WHEN DESCRIBING A DISAGREEMENT AMONG SOME PHILOSOPHERS, INDULGES IN SATIRE AND HUMOR.

Young gentlemen, we have thought it well to drop our philosophical chain at times and take up some other subjects, thus relieving your minds. Therefore this lecture will not be devoted to any particular questions in Philosophy. But during its course, should we fall into, what we may term the Satirical—absurd style, it will be for the purpose of endeavoring to entertain and amuse you, hoping at the same time to impart some instruction.

We have already stated that no two philosophers ever yet agreed; also that it was Democritus who first, as we may say, found the atoms. He was the first one to discover the secret of nature; the materials out of which the external world was made. Democritus, like a woman, could not keep the secret, but hurries off and tells Anaxagores, that "the world and all it contains is composed of individual particles or atoms, which self-existed, are of eternal duration, and by their fortuitous combinations all the varieties of things are formed." Anaxagores said: "Nonsense, Demo.," it was not by fortuity, but by '*commixture and separation.*' And as they could not agree, they called in other philosophers, who, though not yet born, still, had they been; and supposing them to be present, would, like Leibnitz, have said: "You are both wrong. It was by a '*pre-existing established harmony.*'" Mr. Spencer said, "No; no. It was by '*Force a mode of the Unknowable.*'" "Yes," said Boscovich, '*atoms are mere geometrical points, and have no extension in space. They are simply combinations of varied combinations of forces,*' but not force in the sense which you use it, Mr. Spencer."

So they could not agree. They were too philosophical for that, and they applied the principle of contradiction so lively, that they began calling each other "names;" casting reflections

on each other's learning, capacity for judging, and ability to logically cognize; when in stepped the Bishop of Hippo, St. Augustine, who being a philosopher as well as a Bishop, they asked him his opinion, not as a Bishop, but as a Christian Philosopher. The Saint, after crossing himself, said:

"There is in the order of beings one truth, origin of all truths; for truth is a reality, and there is one Being author of all beings. This being is a truth—truth itself—the plenitude of truth—for he is being by essence, the plenitude of being. And he, the Lord, *created the world* in the beginning and all organisms were then *created;* not actually, but potentially, to be subsequently evolved into actual existences at due times and seasons when the conditions originally intended and decreed should arise; for thus taught Moses, who tells us: '*God said let the earth bring forth the living creature, and it was so.*'"

This rather cooled the philosophers. They stopped disputing, and had a hearty laugh at the good old Bishop's credulity. Some one among them said, That faith was, no doubt, a good thing to have, as it can make a good Bishop, but a very bad philosopher. They were about separating when in stepped Sir William Thomson, who had traveled all the way from where "Britannia rules the waves, and where Britons never, no never shall be slaves." So, after Sir William being told the different opinions of the others, he said:

"None of you are right. I discovered, accidentally, how the external world was formed. And as there might be a dispute as to the time of the discovery, I was very particular and told my servant-girl on the 21st of the month, at 16 minutes and ¾, lacking an ⅛ of a second of two o'clock, P. M., in order that she could swear, and thus bear witness, that I was the first philosopher who had found out how the world was formed." The others all held their breath, waiting for the secret, when Democritus said: "He should be very sorry if Sir William had found his atoms to be non-existent." Anaxagores remarked: "Even should this be so, our present, pleasant '*commixture*' need not cause an unpleasant '*separation.*'" Leibnitz said: "I shall be glad if the truth has been found, as, then, it will restore our '*pre-existing established harmony.*'" Mr. Spencer tried to "*force*" a laugh, while the Bishop crossed himself and said an ave.

Then, Sir William, feeling that proper pride, which all, if not great, yet, good men feel, when about to bestow some beneficient gift upon their race and kind; and being imbued with that certainty which is characteristic of all philosophers, opened his Sir-dogmatic mouth and there issued forth the words—"Listen! It was by action of the vortex atoms, producing '*varied vibrations, knottedness. and linkedness of vortex rings.*'"

Amazement, like a Cyclops, sat upon each brow; for Silence, like a thief in the night, had stolen their powers of speech; so, buttoning their coats, like the Arabs, they quietly sneaked away. It was found out afterwards that Sir William was not the first to discover all this; because the vortex ring-portion was discovered on the 21st of the same month, at 16 minuses and ¾, lacking but an ⅛ of a ¼ of a second of two o'clock, P. M., by an old Dutch philosopher named Helmholtz, who divided his time between making and eating Limburger cheese, and watching those corpuscles, which La-Sage says:

"Fly with a velocity millions of times faster than anything in the universe, and which go straight through the sun and the earth without striking a single molecule."

Helmholtz was curious to ascertain if some one of these corpuscles would not, sometimes, hit a molecule; and also to find out if it should, whether or not the molecule had the spunk to hit back; for he knew that the molecule knew that there would be no use of its trying to have the corpuscle arrested for battery, because it could fly with such velocity that even a newly appointed "Municipal Police Star" could not catch it. Although these "Stars" do fly around, or revolve a little when first placed in their "beat" orbits, but in about two weeks they find out that their centre of gravity is Rest, after which they cannot catch a cripple; so there would be no use in sending one of these after a corpuscle.

Young gentlemen, we not know, therefore, do not pretend to say, that Sir William stole that vortex ring. We think that he was only a fraction of a quarter of a second too late. The Dutchman was ahead of him. He had more corpuscle blood in him; therefore, we do not think that Sir William stole the ring. We do not believe that any man whose ancestors had

their blood blued by the winds which blew over that other William, the Norman robber of Albion, would do such a thing as that, unless he was a philosophical hog and got made into "My Lord Bacon." There is a another reason why we do not think so. Sir William possessed great special rights and privileges wrung from King John by his ancestors—those sturdy monoply Barons—privileges to do as they pleased; to live in their castles and make the people, called vassals then, like the vassals who are called "the people" now, do all the work and pay the taxes, and, besides this, Sir William had inherited a great Name, which he desired to hand down unsullied, to future generations.

"But what's in a Name!" Exclaims the financial poet, "Except to endorse on the back of a Note, it is mere sound and wind."

This may be so, but something more than sound resulted from that wind which blew those blue-blooded Norman robbers over to Albion. It turned out to be a good financial wind for them, as they gobbled everything.

In these equality days; in these no-corporation, no-special-rights and privilege days, these blue-bloods have some difficulty in holding on to their special-rights and privileges; but they hold on to their great "Names," if they are "mere sound and wind," even when they have not a penny in the way of cash. And we tell you what,, young gentlemen, that wind, or something very much like it, is still blowing. It is not only blowing the blue-blooded "Names" across the Atlantic, but has already cycloned every American girl, whose "daddy" has monopolized four-and-a-half dollars more than someone else, to think that their blood is not blue enough.

From our observations, we have found that this wind is getting stronger and stronger every day. Why! It can not only gather together Stocks, Bonds and Shares, but can blow the hinges off the vaults of the biggest Banks in the country, and get clear down to sulphurets on the "Comstock." After making a strike of this kind, it veers around, and blows the girl, the money, the blood, and the "Name" back across the Atlantic, and drops them all over Europe; from Deutschland to Hingland; from ze grandé frigassee, the macaroni, to the sneezing Polandee, where the "Names" can "loaf" in their castles, and be afraid

of the butcher and baker no more; having nothing to do but study the multiplication table, in order to find out how much they made out of those foolish "Yanks," when they swapped their "Names" for dollars, and got a wife too boot.

Young gentlemen, we have been getting off our subject. Our mind must be somewhat, like Sir William's theory. It must have some "varied vibrations," and become so "linked and knotted," that we fall into a "vortex-ring" when we happen to think, and endeavor to show how differently nature works in some people. Thus, for a time, we forget the more important thing, Philosophy.

We have already stated, gentlemen, that the principle of contradiction is the condition *sine quâ non* of human cognition; that in the historical strata, there have not, as yet, been found any two philosophical fossils alike; that nature delights in contradiction, and that the antithesis of agreement is the ruling element among us philosophers. Now, the doctors are the same in this respect as philosophers. If matter, or the different sets of molecules by their combinations can give rise to such new relations, and produce such novel effects as to evolve two doctors who can agree upon any question in their profession, they have not yet done so. The human mind can conceive of many possible beings; but for it even to imagine two such beings is beyond its present limited powers. There may be such a condition, such a state of existence, such beings who are so constituted as to be able to imagine such in Mr. John Stuart Mill's planet, where the sum of two and two make five; but on this Earth, nature appears to have erected a barrier, as she has with hybridity, to prevent the production of, as Prof. Credo says, such monstrosities; and singularly enough, these doctors never try to agree. We philosophers do try sometimes, but as yet have not succeeded.

Prof. Jubal Having Attended a Convention of Philosophers Relates the Proceedings to his Class.

When we were studying philosophy, we were invited to attend a Convention or Caucus of Philosophers, the object of which was to try and settle upon some One theory for Philosophy, par-

ticularly for a Cosmogony. So at the opening of the caucus the Chairman arose and said:

"Philosophers and gentlemen, we have met for the purposes of unity, harmony, reconciliation of differences, and to endeavor to agree upon some One theory for Philosophy. As truth, from its essence, can be but One, and as there are as many different theories as there are philosophers, the charge is made against us. that if any one of our theories be true, the others must necessarily be false, as according to the maxim: 'True philosophy is never at variance with nature.' Therefore, there can be but one true philosophy. Such being the case, it will be well if we can settle down upon some One Theory. I may, in advance, be allowed to express the opinion of the Chair upon one point, namely: That, of course, we cannot adopt the 'Fable of Creation,' as Prof. Haeckel expresses it, or the 'Hebrew Myth," as Mr. Spencer terms it, and who also has endeavored to show, that, Creation is an unthinkable, impossible idea."

After the chairman sat down, one of the philosophers arose. The chairman recognized the philosopher from Figi, who, addressing the chair, said. "I wish to offer a resolution upon what must first be decided, namely: How came Matter to first exist? I will let the clerk read the resolution."

"*Resolved:* That in the opinion of this Convention, it is more reasonable, thinkable, and infinitely more philosophical to believe, that primordial matter was not self-created, nor created by an external agent; but that it self-existed, that is to say, had No-beginning."

There was a long and bitter fight, but a strictly philosophical one, over the resolution; yet it was carried by a majority. Had the caucus adopted the two-third rule, which all minorities endeavor to have adopted, the self-existent philosophers would have been defeated, as the best and most logical speaker there, upon the Self-made side of the question, was Prof. Bunsby—but he spoke rather too long, yet he came near carrying the whole assembly along with him, when in that tone of voice, like that of a nautical bull, for which he is so celebrated, he bellowed forth:

"Casting to lew'rd Mr. Darwin's 'Voyage in the Beagle,' and we ourselves giving a wide berth to the Goodwin sands in the 'Cautious Clara,' and keeping our weather-eye out on the rocks

of Mr. Spencer's 'outer relations,' we ask in the name of a fair imaginary wind; of a hypothetical breezer; in the name of a theoretical nor-wester when it fills your speculative scuppers full of foaming philosophy, and you're 'bleged to batten down your hatches of taking for granted, to ans'er us these opinions. 'Which way? If so be, why not? Therefore.'"

The Convention next took up the problem. What is this Self-existent matter? And of what is it composed? The resolution read:

"*Resolved:* That primordial matter, which had no beginning, is composed of molecules which were never born, and which will never die. They had no progenitors, and they leave no offspring. They are all different from each other; some having an affinity, some attraction, and some a repulsion for each other, and each kind is assorted into sets." This resolution was carried by nearly a unanimous vote.

The Convention then took up the aggregation question, and decided: That at some time, in some way, each particular and peculiar set and kind of molecules, according to their affinities, did aggregate and form the visible universe. So far as to the way in which the molecules aggregated and formed the sun, moon, and this earth is concerned. The long and short of the matter was, that the "Dixey"—molecules, being hot-headed molecules, seceded, went off, and made the sun. The cold molecules got together and made the moon, and were headed by a "boss" molecule mamed Looney. If you look in your lexicon you will find it under the head of *Lunaticus*.

Another set, the sublunary molecules, having a dirty affinity, aggregated and made the earth? and although they were the meanest and nastiest set among the primordials, yet, they understood business; for they had not fairly finished forming this earth, before they started the "Hotel de Mundane," and, all over it, painted the name of the landlady and the character of the accommodations; thus:

MRS. MOTHER EARTH.

BOARD AND LODGINGS.

REST FOR THE WEARY

—AND—

STORAGE FOR COFFINS.

☞ N. B.—Lodgers are not awakened by gongs or bells, the landlady desiring that they

Requiescant in pace.

So, young gentlemen, you find that the Convention up to this point, did pretty well; because, by getting the connection, and afterward the separation, and then the aggregation of the moleculess into lumps, a great many metaphysical children were born. The first one was Old Distance; next his child Proximity, who was entirely dependent on the Old man Distance for his living. It was *then*, when that future was born, with which Mr. Spencer says, the womb of things became pregnant. It was also, *then*, when Time was born; because, before Time existed, there could be no Future, no Past, Prior, After, Before, Subsequent, Duration, Distance, nor Proximity; as before all these were born, the molecules were close together in one homogeneous mass, "in a gaseous-state of aggregation," as Kant says, "equally filling up the whole space of the universe." Consequently it did not take any *time* to go anywhere, as there was nowhere to go to, and no *time* in which to go to it, or as Prof. Yag says: "It did not take any time to travel over the road."

As we have said, the philosophers did pretty well, and, so far, were much pleased; because, after deciding that there was No-beginning of anything, they were enabled to get the no-beginning molecules into no-beginning lumps; inject a no-beginning motion, which caused a no-beginning revolution of the no-beginning lumps. This revolution became so lively that it generated a no-beginning heat; and this was the period in that future, when Kant's "glowing balls of fire, like gigantic drops of metal," were born. So after making the solar system; getting the sun burning; the moon freezing; the world atmosphering; the twinkling stars winking; the comets frisking, with their tails over their backs, like a calf in a clover-patch; old Time with his scythe on his back going out a-mowing; Old Distance talking about his "Here and his There," and his child, Proximity, gabbling about "It was not so far off from a place when he was around," the philosophers found that the worlds, after all, would not be of much account unless they could make some things which could live on them. So, in the efforts to do this, they

went so far as to imagine a man in the moon, but no where else; and they were not quite certain of that; because he never showed his face out of doors till after he had been on a "tare" around; got some "horns" in him; spent all his "halves" and his "quarters," and got himself "full," yet, they kept on trying, and when they did succeed in getting anything to live anywhere, they could do it only on the dirtiest world of the lot. Still, before they succeeded in getting anything wriggling on this earth, they had a deal of trouble, as they had no "life-stuff;" no "life-matter;" no "protoplasm," as Mr. Huxley calls it, out of which to make the live things, and they found that they would need a great deal of this. They said, "It would not take much *life-matter* to make a flea, but a heap to make an elephant;" besides, they said, "Even if we had the *life-stuff*, we have no moulds to cast them in." So after arguing, theorizing and hypothesizing for a long time, they could not, even with the elastic cord of philosophy, stretch their minds sufficiently to imagine how it could be done; when one old veteran philosopher who was over in a corner sitting in a pantheistic chair, jumps up and says: "Let's evolve 'em out of the molecules. The molecules made themselves. [He was one of the make yourself philosophers,] when there wasn't anything to make themselves out of, then, out of them we can make anything we want, from a giraffe to a wooden-leg." "Eureka!" they all cried.

Some people think that "Eureka" is a "'49" word, and originated up in Nevada County, California; because, when the gold-miners in "'49," found "pay-dirt," they used to halloa "Eureka!" But the word is one of those dead Greek fossils which was deposited during the dim, dark ages in the Finding stratum, before the rudimentary alphabetical rocks upheaved from their resting place, the philological evidence whence they came.

Those old Argonauts, who lived during the deposition of the Finding stratum, halloaed out this word, Eureka, when they found the Golden Fleece. This word is lisped on the liquid tongue of the prattling Fuegeian, and whispered in the low, soft accents of the refined Australian. All finders in the world, in every age, of every tribe and tongue, have used it. The real

meaning of the word is, "You bet, I found it!" The people who have almost lost the sound of this word, are those of Hari Kari, whose tails, contrary to Mr. Darwin's wishes, grow out of the back of their heads, and who once were le'pers off the Steepes of Tartary. When these people find anything, instead of halloaing Eureka! they cry out "A'lite, John! me ketchee!" We have adapted their word Tartar; and use it when a man starts ous fishing for a wife, but catches a Tartar.

After the Convention had decided to get the "life-matter" out of the molecules, it appointed a committee to report a resolution embodying all it had so far done; and, in addition, to report any suggestions, either hypothetical, or taking for granted, which this committee might think best to imagine. But when this committee reported, it failed to report a resolution, contenting itself with a preamble.

"*Whereas*, That as there is no such thing as no thing; still, a vacuum in nature might be a possibility, owing to the No-beginning of Something which is Everything. That there was no Creation by Fiat, as matter Self-existed, that is to say, had No-beginning; that infinite space was once, before time began, filled up equally full of primordial matter, that is, if time ever began, or if an infinite space can be full; that not one atom of matter has ever been added, nor one taken away from the already self-existing mass; that the molecule, which by some process is formed of two or more atoms, possesses intrinsically all the elements of matter and of mind, and, by aggregation, form everything; every organic and inorganic object in the universe. And lastly: That no living thing can be born, that is to say, spring into visible existence, until its own special time comes, and then only, by the aggregation of the particular and peculiar molecules intended by nature to form or make that particular individual thing, or entity.

"*And Whereas*, the Garden of Eden story being a Hebrew Myth; for the purpose of preserving our philosophical unity, and disseminating our imaginings among mankind in terms suitable to convey to them that which they cannot comprehend, your committee would recommend: That another committee be appointed, consisting of those who are well versed in the

dead languages, and who are fruitful in inventing new and unpronounceable words. If such committee cannot be found self-existing, then, that a self-made one be appointed, and instructed to procure a philological dice-box; also a sufficient number of alive and dead alphabets, and that they throw these from the box until they succeed in procuring the necessary quantity of long and imposing words; so long and crooked that the vulgar will almost wear out the hinges of their jaws before they get through with them. Also a sufficient number of words ending with izics and ptizics, so that they will nearly sneeze their heads off before they turn over the leaf; that thus, by these means, they will believe our philosophical hypotheses, and admire our harmony and unity of opinions."

We did not stop to hear the report of this committee, but it did its work so well, that ever since that occasion, the results can be seen in all our philozophical works.

Young gentlemen, no professor, no teacher, is competent to discharge the duties of his position unless he gets down to the bottom of things. If he be a philosopher and is seeking the vital essence of things, he must get down to what we may term the bed-rock of philosophy; and when he arrives there and believes nothing, he will then have reached a point from which he will be enabled to perform his professional duty; for as Prof. Huxley says: "In science, skepticism is a duty." No clear-down, bed-rock philosopher believes anything. If he did, he would not be a true philosopher. Skepticus, who, measured by our modern standard, was one of the wisest of all philosophers, has stated in the last *scriptum* of his works which have come down to us, that which constitutes true philosophy. We know it was his last, because, at the end, in the largest letters on the sheepskin, he says: I now bring my *lucubratio* to a close. I have proved by that which has no existence, namely: Doubt; that true philosophy consists in believing nothing; that nothing is, was, or ever will be; and further, to believe that you do not believe this. As to matter, the world, and there being anything in or on it, is all imagination and illusion. So far as I am concerned, I do not believe that I am myself. I am as likely, and even more so, to be somebody else; and I do not even believe this. OMEGA.

Prof. Clifford's Origin of the Mind.

We forgot to tell you, gentlemen, that, although the Convention decided that everything was *potential* or possible in the molecule, it did not take up and discuss the question, Whence came the Mind? But one of the philosophers who was there, Prof. Clifford, tells us, and you can find it in his essay "On the Nature of Things in Themselves," where, when showing us how the Mind-molecules aggregate on the belly of the jelly-fish. He says:

"The molecule! I shall call it *Mind-stuff*. A moving molecule of inorganic matter does not possess mind or consciousness, but possesses a small piece of *mind-stuff*. When molecules are so combined together as to form film on the underside of the jelly-fish [young gentlemen, this is getting the molecule rather low down after making the sun], the elements of *mind-stuff* which go along with them are so combined as to form the *first faint beginnings of Sentience*. [This will not do; this is something which has a beginning.] When matters take the complex form of a human brain, the *mind-stuff* takes the form of human consciousness, having intelligence and volition."

From this you can see how necessary it is to get down to the bottom of things. Prof. Clifford could not find the origin, nor the essence of Mind until he reached the bottom of the jelly-fish. He had to get down into the "film on its underside." Whether or not this was the same jelly-fish which Mr. Spencer examined, we do not know. If it was, then Mr. Spencer did not get down low enough, or he might have found his speck of jelly was also *all film*. But it may be that he was not seeking for the *mind-stuff*; but simply examining the anatomy of a structureless speck of jelly to ascertain how many structures it had. Upon finding it was *all* structures "at once," and having "no doubt of its being *all lung*," he must have come to the conclusion that it was also *all mind*, and, therefore, did not turn the speck over to see, knowing that it is there where most minds are located in organisms, when they are exercising their *all* hands, *all* mouth, *all* teeth, and *all* gullet in filling their *all* intestines.

As the origin of the mind has caused many fierce contentions among us philosophers, we would like to hear Prof. Credo give us his opinion of this latest and most probable origin of the

mind, particularly as Prof. Clifford explains how the "complex form of the film takes the form of human consciousness."

PROF. CREDO GIVES HIS OPINION OF THIS ORIGIN OF THE MIND; AND THAT OF MR. SPENCER'S; ALSO, OF SOME OTHER PHENOMENA.

PROF. CREDO.—Well, Jubal, admitting this to be so, and also admitting with Prof. Helmholtz that "nature has taken many crooked ways toward an extreme perfecting," we must certainly say that she has taken a very low way in this case toward brain and mind perfecting. But still, it will assist Mr. Darwin in accounting for the filmy brains of some people. And it might be that this is a part of the mode which Mr. Spencer's Force carries out, requiring, no doubt, all the Persistence it possesses in order to accomplish the aggregation of the mind-molecules in such a singular place. Now, we do not object so much to the brain and mind molecules aggregating on the underside of the jelly-fish, even in a complex form; but for them to leave the underside of anything, and go to forming the brains and minds of such kind of philosophers, rather lessens our good opinion of the molecules. Since learning this philosophical fact, Jubal, we do not wonder so much as we did, that Mr. Spencer could, as he says:

"Find nothing satisfactory in the conception of a Creator displaying his ingenuity in building up a great variety of forms without departing from the archetypal type; that a more advantageous arrangement might have been adopted;" nor, that after learning of this jelly arrangement, he should "consider the existence of an external agency useless and unnecessary."

Whatever opinion, Prof. Jubal, you may have in regard to the quality of the film which took the complex form of Prof. Clifford's and of Mr. Spencer's brains and minds, you cannot charge them with the want of that which is so necessary in a book-agent—"Cheek;" for we do not think, that modesty, like a jelly-fish in the bud, ever had a chance to feed on their arrogant cheeks. They want no intelligent interference, as they can do a little job, such as mind-making, much more advantageously.

While we do not agree with Mr. Spencer in many things, we do in his lucid exposition of the nebular theory, when he tells us:

"Arguing from the known laws of atomic combination, and given a rare and widely diffused mass of nebulous matter, what are the successive changes that will take place? Mutual gravitation will approximate its atoms; but this approximation will be opposed by atomic rupulsion, the overcoming of which implies the evolution of heat. Eventually this slow movement of the atoms toward their centre of gravity will bring about a phenomena of another order. When the nebulous mass has reached a particular stage of condensation; when its internally situated atoms having approached to within certain distances, have generated a certain amount of heat, and are subject to a certain mutual pressure, some of them will suddenly enter into chemical union, when further molecular combinations will finally take place."

We give into this. We agree with him here, particularly on this something called heat, coming into existence; a something which did not exist from all eternity. We can cognize the advantage of this arrangement, because it is in strict accordance with the basis of his theory—a No-beginning of anything. The reason, Jubal, why we can cognize this is, because Mr. Spencer has told us in his "Psychology," how it can be done by the mind. His law of intelligence being. that "the strengths of the inner cohesions between psychical states must be proportinate to the persistences of the outer relations symbolized."

We agree with him again on this "advantageous arrangement," and admire the force of his argument, as it is clear that the law of intelligence must come about in this way, whether you symbolize it or not; because Force, being the cause of Motion, is the exertion or action of a power. This power can have no existence unless there exists some thing, some body upon which it can act, and the effect—motion—produced on such body, must be *proportinate* to the strength and *persistence* of such exertion. In the language of Mr. Spencer:

"It follows then, that the development of intelligence is secured by the one simple principle, that experience of the outer relations *produces* inner cohesions, and makes the inner cohesions strong in proportion as the outer relations are persistent."

Now, while this, "one simple principle" is new, still, if true, it would not be much of a philosophical idea. Over 2,000 years ago, Aristotle laid a more philosophical egg than that in the nest of his categories. But Mr. Spencer not beiug a Greek, may

never have became acquainted with Aristotle. Yet he may. He may have gone over to Athens for his health, and dropped into Aristotle's drug store to get something to stop the softening of the "complex compound" of his brain, and "*mind-stuff*" molecules. When a man uses his brain, the way in which Mr. Spencer has used his, the brain molecules are very apt to run along lines of least resistence and become soft; because, then, their "inner cohesions do not keep proportinate to the persistence of their outer relations symbolized," without which, according to Mr. Spencer, there cannot possibly be intelligence. So we agree with him, that is, on the major premiss of the syllogism—"Inner cohesions." But the conclusion, "outer relations symbolized," leaves no proper middle term, and, right here is where he falls into a vicious circle; goes round and round until he drops into a *reductio ad absurdum*.

Now, had he taken *all* the strengths of the inner cohesion, and *at once* proportioned these *un*symbolized with *all* the outer relations of the phenomenon *Homo* or Man, he would have found the correct middle term, thus:

MAJOR PREMISS.

Inner cohesion disproportionate—a thing existing without intelligence.

MINOR PREMISS OR MIDDLE TERM.

Outer relations proportionate—a thing existing with intelligence.

CONCLUSION.

Therefore, *Homo* or Man.

These three terms complete the syllogism, and we arrive at the proper conclusion, that there is a great deal of human nature in man. And should you change the sex of the phenomenon, you will find there is much more in woman. Logicians, however, never give us the syllogism in this form, and we generally find philosophers have nothing to say about the women. It is all about the biped mammal, Man. There is little doubt but their experience has been, that they had better let the female sex of the biped alone, for if they even undertake to formulate the femaln biped, they will soon find themselves in the vocative major

of a vicious circle. If any philosopher thinks that the molecules have not evolved sufficient "mind-stuff" into the women, then he has not cognized rightly; for the women have had too much "mind-stuff" evolved into them, more than their share, and of such quality, that it takes but a *piece* of their minds to porcupine your hair, so that you cannot sleep o'nights. We have been there, Jubal.

But speaking of the "mind-stuff," without intending to be low in our expressious, we think Mr. Spencer must have had a sort of philosophical jamboree, when he was philosophizing about there being no necessity for a Supreme Intelligence to account for the visible existence of the universe, etc.

He must have used a philosophical squirt, and injected "cheek-stuff" into himself, as the doctors inject the morphia into you when you have the alcholic jamborees; because, he says:

"If we go back as far as we please, no doubt we shall come to a time prior even to the nebula, when the substance of the solar system existed merely as such—*i. e.*, in an almost or wholly undifferentiated from; the products, no doubt, of endless cycles of previous evolutions or dissolutions of formal differentiations."

But, still, Jubal, this is something reasonable; and comes within the condition *sine qua non* of the thinking film to cognize, because, upon his theory of a No-beginning of anything, of course, the substance existed "merely as such," or how could it have formed the solar system? If it did not exist in a "wholly undifferentiated [or no difference in] form;" and the elements of which this substance was composed, did not always exist, by and of itself from all eternity, how could that which had No-beginning form the solar system, which had a beginning? If this were not the case, where would Mr. Spencer's philosophy be, resting as is does upon a No-beginning premiss? for he says:

"The absolute commencement of organic life on the globe, I distinctly deny. The affirmation of Universal Evolution is in itself the negation of an absolute commencement of anything."

But, we tell you, Jubal, Mr. Spencer would never have found out all this, had he not used that philosophical squirt. And it

is very fortunate for philosophy and also for the people, that he had it on hand at the time. People often lose a great deal by not having things on hand at the right time. You will frequent- to find cases of this kind with the women, when they go the auction, where their neighbor is being sold out for the gas-bill. They find, if they had only enough money right there and then, they could have bought a second-hand stomach-pump, and had it handy, in case their husband threatened to poison himself, if that "chin-music" was not stopped.

Prof. Jubal Shows How all the Lost Greek Books Can be Obtained—Also Relates the Race Between Achilles and the Tortoise.

Prof. Jubal—Young gentlemen, we are glad that Prof. Credo admits the possibility of the mind being produced, both in Prof. Clifford's and in Mr. Spencer's way; also the possibility of our solar system having been produced from a mass of matter which eternally existed, "as such," because, when you come to learn that Evolution rests on the assumption that the elements of matter being eternal, must have passed through infinite combination; that one of these combinations must be our present world, you then can understand how it is within possibility, that should you throw from a box the letters of the Greek alphabet an infinite number of times, there is no absolute impossibility, no physical law to prevent the letters falling on the required side; and uniting in the proper order, thus producing the Iliad and all the Greek books. Everyone who has studied possibilities know this. While we have not thrown the Greek alphabet an infinite number of times, still, we have nearly the whole set up in our library. Some of these books we have been unable to obtain, owing to their remains being too soft; too structureless, too untossilized, to leave any trace of their previous existence. We have spent much our money and more of our time in our efforts to obtain the lost Greek books, in order to learn whether or not Achilles has yet caught the tortoise which had the start. We have been anxious to learn this; because it is over 2300 years ago since they commenced to run. We found in one of our Greek books that it was Zeno who got up this phi-

losophical race, in order to prove that there was no such thing as Motion. He said:

"Suppose Achilles to run ten times as fast as the tortoise; yet if the tortoise has the start, Achilles can never overtake him; for if they are separated by an interval of a thousand feet, when Achilles shall have run these thousand feet, the tortoise will have run a hundred, and when Achilles has run these hundred feet, the tortoise will have got on ten; and so on forever; therefore, Achilles may run forever without overtaking the tortoise."

This is known as the Greek puzzle. There were among these Greeks a set of philosophers, known as Sophists. One of them, in order to prove that all motion was impossible, tried to demonstrate to Diogenes that he could not walk. But Diogenes said: "Well, we will see about that." So he gets out of his tub and walks around it.

Among the Greek books which we have succeeded in getting, we found that we have always been mistaken in regard to Homer writing the Iliad. We found that there never was, even pre-existing in primordial matter, any man by the name of Homer. The word was *Homo*, Man; that is, a man wrote it; and the e, r was put on the end in order to show the man'er of the man's writing. So in time it got to be written "Homer." Such being the case, we think it about time we shut down on Old Homer, and give the man credit; even if he never pays his debts.

Some of the Effects Produced by Force when he Aggregated the Molecules.

Young gentlemen, while we have been off the direct road which leads to the temple of philosophy; still, so far as we have gone, we have shown you what a molecule is; whence it came, and what it can do. We have shown you that it is everything. Everything is in it, comes from it, and is composed of it; that no thing can be formed; can come into visible existence, or as we say, born, until its own time comes; that we ourselves could not have been born until our particular and peculiar molecules aggregated.

We desire to recall to your minds some few quotations which we have already given you from philosophers regarding the pre-existent, pre-formed, antecedent, sensible form of visible things; and the absolute need of the molecules in

their production. And also refer you to what Mr. Spencer tells us, that

"Specific molecules form by aggregation the structures to which they belong; that they are compelled to fall into these structures by the environing forces acting on them."

He further tells us in his "First Principles," "An entire history of anything must include its appearance out of the imperceptible, and its disappearance into the imperceptible; be it a single object or a whole universe. Hence, wherever we now find Being so conditioned as to act on our senses, it must have had an *antecedent existence under this sensible form;* and will have a *subsequent* existence under this *sensible form.*"

Prof. Haeckel says: "The number of *potential* or possible individuals existing in the germ state which might arise, is very much larger than the number of real or actual individuals which do live simultaneously on the earth's surface." * * * "The *potential* or possible exists in the primary molecules for the actual existence of every individual thing. Should the aggregation of the peculiar molecules out of which such individual is to be formed take place, then, potentiality becomes realized. Hence the saying of St. Thomas, 'Plato might never have been born, although the possible was there in Primordial matter.'"

Young gentlemen, you can now begin to see how clear the road is; how bright the sun of philosophy shines in the dark abysses; how the lantern of the educated pours out its effulgent rays of previous research, and enables us philosophers to see these very little, little pieces of "life-stuff" and "mind-stuff" wriggling in the molecule; to see that "they are all different and assorted into sets;" that when the right time comes, they aggregate, form a world, a jelly-fish, and bring forth the man. It also explains to us the natural cause why we are not all born at the same time.

Taking it for granted that these philosophers are correct, then upon these principles of the laws of nature, there must be somewhere, of course, a great number of people who have not yet come from invisibility to visibility. They are existing somewhere in a "sensible form," but as yet, as is said, have never been born; and many will not be for some time to come; not until the aggregation of their peculiar molecules takes place, and then they will be born. For, as Mr. Spencer says:

"Force made the molecules aggregate so as to form the Uni-

verse, the world, and *everything* in and on it. The materials were there. It only wanted the necessary combinations."

Thus you can clerly understand how it comes about, that the molecules which were to make Moses, got together before those of Julius Cæsar; how those of Cæsar before those of Stonewall Jackson; also, how Aristotle's got through with their aggregating task, 2,268 years before Prof. Haeckel's and Mr. Darwin's own special and, by-the-way, very peculiar molecules aggregated and combined, thus bringing them from imperceptibility to perceptibility.

Ah! young gentlemen, it is a great thing to possess philosophical kuowledge; a great thing to have the molecules of the brain and mind so trained as to be able to analyze nature; take her apart; synthetically build her up again, and find out, not only how crooked, but how correct, harmonious and absolute she is in all her ways. She never fails; she never makes a mistake. If a crab loses a claw, she never puts on a wing or a wooden leg. The molecules which form horns and those which form tails, never make a mistake by aggregating on the wrong end. Neither does she make any mistake on the time question. Had she aggregated the molecules which were to form Mr. Darwin at the time of Philip of Macedon, instead of Mr. Darwin now, hunting for the "Missing Link," he would have been then carrying a lantern, and assisting Diogenes in his efforts to find an honest man.

Again, observe the depth, the propundity of the thoughts of Prof. Bunsby. "If so be," that Force had not aggregated the peculiar molecules which pre-existed, and out of which Prof. Haeckel and Mr. Darwin were to be formed, why then, of course, they would never have been born. In what condition of philosophical ignorance do you suppose the world would now be in, had this been the case? It is sad to contemplate. Bob Bangyoursoul might have never been born. The possible was also there in the molecules so that he could be. All Mr. Spencer's "Force" had to do was to hustle himself around and get Bob's molecules together; had he not done so, there would have been no use in anybody else bothering themselves about going down to the City Hall and getting a marriage license from the Clerk. These are the logical conclusions from the premises and principles.

Again, there must be, no doubt, a quality of molecules existing somewhere, which in the unlimited aeons of miliards of unthinkable ages to come, will get together, and bring into existence some fellow who, like a philosophical prize-fighter, will knock the theoretical socks off of us present philosophers.

We arrive at another logical conclusion from the premises. As everything is formed of different kinds of molecules, they not only have to make each particular thing as a whole, but also each separate part of each thing for which they were fitted and fated from No-beginning. We shall prove in a future lecture, that as there were only just so many of each kind of molecules at the No-beginning, and as not one can be added to the already existing mass, when they have all come *once* into visible existence, performed their particular individual mission, and are all used up, "shrunk back," as Bonnet says, "to their original germ state;" and as Mr. Spencer tells us, from their "perceptibility to imperceptibility;" that then will come Dissolution, or the Death of this World.

At the risk of somewhat foreshadowing our Theory of the Origin of the World and Species, we will present to you some other logical conclusions which must be deduced from the principles contained in the quotations we have given you.

First: That the peculiar kind of molecules which form and make the coon, cannot make the dog that catches him, nor the colored gentleman who is sure to eat him.

Second: That the molecules were compelled to form Prof. Haeckel just as he is; his own particular brain, nose, hair, number 10 foot; just so tall, and just so big around—and as we shall hereafter prove that there is no such thing as growth—his molecules could not possibly have formed him a gossamer sylph like Daniel Lambert or Capt. Kentzell. And why not? Because there were not in existence, a sufficient number of molecules which belonged to the professor. He could get only those which pre-existed for him. He could not appropriate by interposition, accretion, or any other mode, the specific molecules belonging to someone else; if he could, he would be a part of this someone else. He could no more do this than he could increase his size and weight by appropriating the molecules of the bull he tells us of "who got his tail wrenched off by the careless

slamming of a stable door near Jena, and ever after, the calves of this bull were born without tails." Now, we have no doubt, but the carelessness of this bull getting his tail in the jam of the door, so enraged the tail-molecules, that ever after, they refused to aggregate and form tails on the calves of this bull.

If any object, animate or inanimate, could appropriate the molecules belonging to another object, it would destroy the very fundamental principle of nature, as a thing could then be other than itself. This logical conclusion cannot be denied. Of which hereafter.

Third: That as our minds are as separate in their individuality as are our bodies; and as Prof. Huxley and Mr. Spencer tell us. "All our thoughts, feelings and sensations are the result of molecular action." Then, of course, if their action in the mind of Prof. Haeckel causes him to think and believe that he descended from a "sponge," a "worm," a "squirt," or was spontaneously generated."—Mr. Darwin to think that he has been transmitted, hereditarily, from a "big hairy fellow, with canine teeth, wagging ears, had a tail, and was arboreal in his habits." —Sir. William Thomson to think he came off some "meteor which brought germs and life from some other planet."—Prof. Huxley to imagine that he came out of the sun in the form of "protoplasm."

And if the action of these molecules causes Von Baer to think that he is a "speck of whether-beaten dust, which leaped forth into life from the surface of our metallic planet," and notwithstanding the complexity of their action on the minds of other philosophers, if these molecules have caused Prof. Clifford to become satisfied that he obtained his "thinking-film from the underside of a jelly-fish," why, then, these gentlemen cannot help themselves. Because, as everything pre-existed, their different kinds of "mind-stuff" molecules being all philosophical molecules, were "compelled to fall into the structure to which they belong," and form different kinds of philosophical brains and minds, consequently, these philosophers were always that way of thinking, which explains a universal phenomenon, by showing us the natural cause why we do not all think alike; for, if we did, the principal of contradiction in nature would be

destroyed, and we would then, no doubt, be all Democrats in politics, and Mormons in religion.

Remember, young gentlemen, we are saying nothing against the molecules, for with them we shall build the superstructure of our theory, resting it upon a firm basis—the science of molecular physics. Besides, they have done well by us ; they have brought us into visibility and made us a philosopher. We must again remind you that no thing, from an invisible speck of matter to a world ; from an odor to a sweet ; from the light of a penny candle to a burning sun, or the mountains of eternal ice at the poles, but what is formed of molecules. We shall prove hereafter, that these molecules are around us floating in the air, aggregating, forming, interposing, and adding to every object, and to such objects only as their nature compels them to add.

Some Serious Consequences which Might Have Resulted, Had "Force" Made a Mistake in Aggregating the Molecules.

We have now given you sufficient knowledge of the molecules to enable you to understand that some serious consequences might have resulted, that is, after the atoms had formed the different kinds of molecules by "suddenly entering into chemical combination ;" and as these molecules were afterward assorted into sets ; and only those having an affinity for each other could get along together in the same organic envelope, or, as Mr. Spencer puts it, "the specific molecules are compelled to fall into the structures to which they belong ;" and to eccomplish which, the "Unknowable adopted a mode," and set "Force" to work to carry it out, for, as he says : "Force made the molecules aggregate so as to form the universe, the world and everything in and on it, the materials were there, it only wanted the necessary combinations." We say, from this condition of affairs, some serious consequences might have resulted, had Mr. Force not gotten up pretty early in the morning, before the break of day ; before the chickens gave the warning, that the sun was on the way, so as to have had sufficient time to sift and assort these different kinds of molecules, and get them in to the right envelopes. Had he not done this, what a mess he would have

made of it; what a mixing up of species; what monstrosities would have become visible afterward on this earth. Here is where the wisdom and depth of thought in the Bunsby mind reveals itself. "If so be." Had Mr. Force happened to have gotten some white man, some colored brother, and some Chinese molecules in the same envelope, we do not know what Mr. Darwin would have done with him. He could not have played "natural selection" on that fellow. And, "If so be" Force had gotten the molecules of the wild-cat among those of the doves; the fox among the geese; or dropped a flea or two among the elephants; or some ants among the whales; some short tongues among the long tongues which he had laid aside for the women, because they would not fit any other kind of a jaw when they came to vibrate at concert-pitch, with the "chin-music," What then? Why, there would have been a terrible time when all these came into the visibly organized state. Mr. Darwin would have been compelled to have invented a hundred-barreled-double-left-oblique-heriditary re-evolver, before he could have found out how these were evolved. But we are not now lecturing on Evolution, nor the Survival of the Fittest. How the chain of the fitted and the unfitted have their links running down to the molecules, ages before they formed film on the underside of the jelly-fish, will be explained in our lecture on these subjects.

Some of the Advantages Gained by Philosophers in Adopting the Self-Existence Theory.

Young gentlemen, we stated in our first lecture, that we should not examine the Self-creation theory, and, so far as we were concerned, should let that of Creation by an external agency take care of itself; but should follow the example set by Mr. Spencer, who, in his "First Principles," tells us:

"Seeing that Self-creation is Pantheism, and creation by external agency useless, we are obliged therefore, to fall back on the Self-existence theory, as the one commonly accepted and commonly supposed to be satisfactory."

We therefore hold, that the theory of Self-existence of the Universe and the world to be the most reasonable, probable, and decidedly the most thinkable, because, from a premiss of

a No-beginning, if we cannot logicaliy deduce the conclusion, we can philosophically hypothesize, just how the world did begin, was formed and made; besides, it enables us to account for how everything in and on it *began* to be, without troubling ourselves seeking for causes. Also, with this theory, we shall, in a future lecture, be able to show you, gentlemen, that had Mr. Darwin studied it, he would have seen that his theories of Evolution and Descent; his hypotheses of Rudimentary, Reversion and Natural Selection, do not go back far enough. He would have known when he found a tailess ape, that that ape never had a tail. He would also have known when he found the milk in the cocoa-nut, that it was always in it, thus saving himself the trouble of bothering the she-monkeys to drop it in.

Another great advantage which we philosophers have derived from adopting the Self-existence theory is, that we could commence with an infinite space, filled up equally full of Something which was Everything, eternally self-existing, uncaused, having no antecedent, therefore no consequent, possessing in itself no distance, no motion, no time, no past, no future, but in a state of an ever-existing present Now. With this foundation we have not only been enabled to build a Cosmogony, but to get behind our No-beginning, and find something which did not pre-exist, or, if it did, it either did not possess the element or power to do that which it afterward did, namely: give the first impulse which caused the first motion of the atoms which filled the Universe. Or, that it derived this power from some other No-beginning power. And the way we did this was by injecting into this Space, powers which we have named "Force," and "Con-cause." These, Mr. Mill says, brought into existence Cause and Effect.

But the most important advantage to us in adopting this foundation is, that we can consistently make Force, not only the Ultimate of Ultimates, but at the same time, make him only a "mode of an Unknowable Reality," whose existence being "unthinkable," had the power to cause this No-beginning force to give motion at a non-existent time, in a non-existent way, or mode, to the contents of a motionless filled space. We were compelled to produce force before we could get motion, as we knew, that before motion *was*, this eternal, self-existing, filled-up Universe was one blank, black, infinity of space. No gleam of

light; no motion had yet come into existence. A chaos of unutterable blackness of darkness reigned supreme. There was one eternal, omnipresent death. And the last, but not the least important thing of all is, that we have been enabled to avoid Prof. Credo's alternative, namely: "to conceive of a first impulse, a first motion, from which has resulted the harmony of this stupendous Universe, we are driven to tne alternative—intelligent purpose or blind chance."

Prof. Jubal finds a Letter which Relates how Force made the Sun, the Moon and the Earth.

The details of the mode by which Force aggregated the molecules so as to form our Solar System, more particularly the sun, moon, and our earth, we have not given you; and should not be able to do so were it not for an accident; for in our researches we have failed to find the details of the building up of the universe of worlds in Mr. Spencer's philosophical works, notwithstanding his philosophy is a synthetic one.

The way we happened to get them was this: Before Mr. Spencer left home and was supposed to have gone to America for his health, he left orders, that, during his absence, his house should be overhauled, cleaned, and painted.

In doing so, the servants had thrown out into the back-yard a lot of old papers and letters of philosophical correspondence, together with the other trash. We happening to call upon Mr. Spencer at that time, picked up one of the old letters, from seeing the post-mark:

"Nebula,
"Womb of Things County,
"State of Pregnancy,
"World of Visible Future."

So we put the letter in our pocket. When we arrived home, we found that the letter was from Persistent Energy, who was Mr. Force's clerk. It appears that Mr. Spencer had sent this clerk to help Mr. Force, who, having taken the contract to make the "Solar System, the world, and everything in and on it," agreed to do it on time and in a workmanlike manner. But as the "Steam paddy" had not yet come into visible existence; or, as Mr. Darwin would say, "Evolved," Mr. Force was compelled

to do the work by hand, like those half-evolved Chinese did when they built their big wall to keep the Tartars off their plantation. So, Mr. Force, finding that it would be a bigger job than he bargained for, wrote to Mr. Spencer for assistance, who sent him Persistent Energy, and telling Mr. Force, so the letter says, that with "Persistence" he can easily carry out the contract; that he will have plenty of time—no end to this, after it comes into existence—in which to do the work; but he must remember that part of the contract where it says: "The mode by which the work was done must be kept secret," and called Mr. Force's attention to the clause.

"Mr. Force, the party of the second part, being furnished with materials, further covenants and agrees with the party of the first part; that the party of the second part will cause, force and compel the molecule material to so aggregate and combine as to make, form, and produce a Solar System, a particular World, herein before specified, and everything in and on it. The party of the second part further stipulates, covenants and agrees, and by these presents do bind himself and his heirs, known and unknown, for ever and ever, amen, that he will do the work by a *mode* adopted by the party of the first part, viz: The unthinkable Ultimate, Unknowable Reality, which mode is to be kept secret. Further: That the violation of this last clause shall work a forfeiture of the contract."

It appears, that at the time of sending the clerk, Persistence, Mr. Spencer requested him to drop a line to him once in awhile in order that he might know how Mr. Force was getting along with the work. And this contract part of the letter is what Mr. Force had told the clerk, Persistence.

The letter then goes on to state, that "Mr. Force, although he commenced the work before he began; before he had any *time* to begin it in, and before he had any vacant space in which to aggregate the molecule materials, he did not get through making the sun before noon; that in his hurry he left a lot of holes in it, and concluded, if he finished the contract according to agreement, he would have to do night work. So, after lunch, he took a bucket full of Lux and light-washed the sun all over; after which he set him a-rolling."

We philosophers, gentlemen, call *Lux*, light, and rolling round,

Circular motion. Also, we say, that the earth rolls round the sun. But still, we, for our part, could never see the use of wasting our ink in telling the vulgar that the earth rolls *round;* because, so far as we have been in philosophical research, or in our personal experience, we have never found, nor heard, nor saw, anything rolling *square* yet, except it might be in a Ten-pin alley, as there you have to roll on the "square," or you will find yourselves rolling on the floor.

But, continuing the letter, it says: "Mr. Force did not have much trouble fixing up the moon, as he had an old Corkonion molecule fellow, named Pat Looney, [He was the same molecule of which we told you who headed the moon-molecules when that Convention of philosophers separated them,] who used to do odd jobs around the place, and run the "Primaries" at Election times.

"So Mr. Force told Pat 'to take a sack of Arctic-molecules and go down and make a moon; but to be sure and not let her roll but one way, as he was desirous of keeping one-half of her out of sight of Astronomicalizing curiosity.' He gave Pat two bits to get a drink on his way down; but, as usual, Pat got drunk off the two bits, so that by the time he was through with the job he was very sleepy, and laid himself face down on the moon to take a snooze. The moon being as yet rather soft, the face of Old Looney was imprinted on it, and you can still see it there on a clear night."

The letter further says, that "after Mr. Force had succeeded in getting the comets whizzing; the meteors meteorizing; the twinkling stars winking; and the ponderosities going like a darkey who has been in the hen-coop and the dogs are after him, he had but a few molecules left. These were the siftings and leavings, and some of them so very nasty that he did not know what to do with them. He did not wish to throw them away. They were not good enough to make a decent world out of, and there was no use of throwing them into one of the holes in the sun, as this would be only wasting them; for, as Mr. Force said, 'the smallest hole he had left in the sun would hold more than forty such worlds as he could make out of them;' so he concluded that he would make a little Corner Grocery kind of a world out of them. But he did not like it after mak-

ing it. It looked so mean and dirty that he was ashamed of it."

So, the Clerk says, that "Mr. Force told him to take some molecules in proportion to 79:00 of Nitrogen, 20:96 of Oxygen, and about 0:04 only of Carbonic acid, and cover the dirty, earthy, filth-exuding thing up with an atmosphere before he set her rolling." The clerk then says:

"I mixed up the different materials, covered her up, and gave her a turn; but the axes being new, she did not go round very fast; thinking that this would not answer, I gave her another boost." And, young gentleman, this is how this miserable, dirty earth of ours came to have two motions instead of no motion, as the old-time know-everything philosophers said she had. Now, we do not care what the letter says, we do not believe that Mr. Force cared what motion she had; for had he cared, he would have looked after the matter himself; because we have always found, if you want things done properly, you must do this, and not leave it to the servants.

Then the letter goes on to say, that "before this, at the time Mr. Force came to making the world out of the siftings and leavings, and to cleaning up, which would be the last job he had to do in filling the contract, he was rather tired; and not caring much what he made of them, he did not mix up the molecule-dough very well, but left streaks all through it." And this is how the several strata were formed. It further appears from the letter, that "Force had left the dough full of lumps." And thus were formed the mountains. "Besides, the dough did not rise very well, as at that time he had no 'east; and not caring enough to go down to the lager beer brewery, he let her go so, consequently, the dough fell down in some places." And thus were formed the valleys. As to the water, we found out afterwards, that "Spring Valley" supplied it, and like everything else on this one-horse bob-tailed-car of a world, it is of no account.

There must be some mistake about Force getting through with the contract when this letter was written, because having been given all the *time* he wanted, he is still persisting, still energizing. You can see from our past argument, that if Force were to cease his work there would be an omnipresent death; consequently, he is still at work. You can see him, sometimes, without a pair of "Muller's Brazil pebbles"—and with these,

you can see the internal relations of an original nothing—when he takes a ride upon the whirlwind, and tells the storm which way to travel. You know he is up there; for once in awhile you can see him lighting his pipe, and can hear him growl rather loudly when it goes out. And this is how we get the Thunder and Lightning. Whenever he takes a shower-bath and turns on the sources of "Spring Valley," he lets that distilled elixer; that unadulterated frog wriggler; that tad-pole exuding, thirst quenching fluid of pure oxygen and hydrogens run down the mountains. And this is how we get the Rivers. But if he has not washed himself for some time, and should take an extra shower-bath, why, then, you had better look out for the flat-boat.

According to Mr. Spencer, everything that Mr. Force takes hold of has to go; even the "Municipal Star Force," but to force one of these stars to go, taxes his powers to their very utmost. Had he not Persistence to help him, he could never move one of these active, and constant "beat-walking stars" out of sight of a corner grocery, nor from a comfortable place for a perpendicular nap. Then there is the force of circumstances. Fortuitous combinations take care of these. Should Mr. Force tell your wife that she ought to have a new dress, you will be forced to give it to her, even should you not have paid the butcher a dime in six months. There is no use talking about action and reaction; the force of attraction and repulsion in nature being equal and opposite; it does not hold good in cases of this kind, where one kind of force is greater than that of repulsion; but when Mr. Force has on hand a job of this kind, he has to get Persistence to help him, then the *moire antique* has to come, or a certain somebody is not going to get his sleep very easy, nor be awakened by very gentle or pleasant murmurs.

Still, there are some things in this world that Mr. Force with Persistence to help him, cannot do. They cannot come within forty rods of it. They cannot open the lock-jaw, nor compel the women to hold their tongues; and, as to forcing them against their wills, why, even a molecule cannot do this; and he is everything; the past, the present, and to come, with the Amen thrown in. And here is where Mr. Spencer is right again; because the power is unthinkable, and the thing impossible. Socrates tried this a long time ago, but Xantippe was

too much for him. The people have been fooled as to why Socrates drunk the hemlock. The fact is, it was all on account of his wife. She would have worn her tongue out on him had this been a thing in nature which ever wears out. Although there was a law in Athens, that if a man's wife did not reverence her mother-in-law, or if she talked too much, he could put her away, yet, Socrates stood the pelting of the loquax-storm, sooner than take the benefit of this law.

You see, gentlemen, Socrates was much liked by the people of Athens, and particularly by those who used to attend his lectures, and when he swallowed the hemlock they did not wish to have family affairs talked about; so they gave it out that he drank the hemlock sooner than retract anything he had said. He was an ugly old fellow; for Lucretus tells us, that "his face was like unto that of the pig." We learned these facts from some of our historical fossils, and while they may appear strange to you, they are, nevertheless, true. Of course, young gentlemen, in these enlightened days, we are not pig-faced and drink no hemlock; because our wives holds their tongues; and if they do not reverence their mothers-in-law, we reverence ours; for all men revere old age, admire strong will, and always desire to have some one around who can relieve them from the labor of "bossing" the Shanty.

Prof. Jubal on Modern Boasting of our Advanced Civilization.

Gentlemen, we desire to give you what little we have learned of the ignorance of these Greeks. When we are deciphering the characters upon any philosophical or other fossils found in the historical stratue, to arrive at a correct palentological judgment of what that they mean, we must take *time* into consideration. We must remember that advance, in the natural order by evolution or otherwise, and in the social and intellectual orders among mankind, it require a long time to reach perfection.

In rhe natural order it has taken many ages for evolution to evolve Prof. Haeckel from a "sponge," and Mr. Darwin from that "hairy fellow with a tail." It has been the same in the social and intellectual orders, therefore, we cannot expect to

find any history, nor could there ever have existed a people as intelligent, moral, or as learned in art, science and literature, as we of the nineteenth century. Should we compare the civilization of mankind, at the period when Socrates lived, with the present, we should find that these Greeks were as civilized to us as we are barbarous to them.

The most we have been able to gather from the record preserved in the historical strata of Greece is, that in Athens, at the time of Socrates, Aristotle, Plato and Phidias, the Grecian people were not sufficiently advanced beyond their Anthropomorphous progenitors to be able to make even peg-shoes, nor had they learned if they were to put paper between the soles of the sandals of Alexander's soldiers, that they might possibly, like the shoes of our soldiers, have lasted them a three weeks' march. The shoddy-mill was unknown at that time ; while pure ground coffee, unadulterated drugs, O, be joyful bitters ! and patent pills had not yet come into visible existence. A two-per-cent animal had not yet been evolved. No Comstock, therefore, no honest "mine" manipulators. It is true that fire had been discovered, but not the poetic fire. They had a glimmering of a language, and made some rude attempts at eloquence. Logic and philosophy had been born, but were so hidden in original swaddling-clothes, that we modern logicians and philosophers have to fondle their fossils before we can understand what these Greeks meant by geometry, metaphysics or a syllogism. In fact, so far as we can judge from the fossilized remains of these Greeks, and from the opinions of our more advanced 19th century thinkers ; those who have drank of the wine of modern progress ; those who have graduated from our high-pressure brain hot-houses ; those whose habitats are the purlieus of Wall street and Exchange alley. From this testimony, we judge that these Greeks had not advanced much beyond the people of London, Paris, or even Boston.

It is from the historical fossils of these Greeks only, that we learn of their rude attempts at Architecture, which consisted in the erection of some bits of shanties which they called "Temples" and "Lyceums," erected of cut marble. Their putting cut marble gimcracks all over these structures, prove them to be ignorant of plaster and putty. Some of these Greeks who were

called "sculptors," did nothing but peck at marbles. These sculptors used to take blocks of marble, and out of them, with a chisel, form statues of an Apollo, a Venus or a Hercules, instead of industrously whittling a stick, like a 19th century Yankee. It is true, that when they had chiselled out a Venus, painted a picture or produced any kind of a useless thing, which they called a Work of Art, they used to exhibit it in the public places, so that their bare-legged, sandal, robe-wearing people might criticise and pass their judgments upon it. These Greeks did not, like us, possess the A No. 1 sense of putting our imitations of their Works of Art in a Gallery, and charging two bits for a sight. This little fact shows you, gentlemen, our great advance in civilization. And just think, gentlemen, these Greeks could only invent a screw, while we have invented that great civilizer, the ten-penny nail.

From a long and patient atudy of their fossilized records, the only motive the literary palentologist can assign for these Greeks writing books is, not that they were, like us, capable of high mental enjoyment, but for the supposed purpose of laying a foundatiou upon which a future people could build intellectual structures. Some of these Greeks were so intellectually selfish and idle, that what little they did know, they kept to themselves by lecturing to students in Lyceums and Academies, or idily walking up and down in tbe shade of a portico or piazza, and talking their Greek lingo.

Socrates was one of these idle lecturers, though he did not walk when he lectured. He did this in a bit of a hovel called an "*Academiea.*" It was another philosopher, Aristotle, who used to walk when he lectured, besides keeping a drug store; pounding out categories, logic, philosophy, and teaching Alexander the Great how to read, write, and his multiplication table. It was this same Aristotle who invented the syllogism to help him test his logic; and because he walked when he lectured, the people in Athens christened him the "*Peripatetic*;" because, as Prof. Credo, who has become intellectually fat from feeding on Greek roots, says: "The Greek language is so rudimentary, so plain and simple, that we moderns, by devoting many years of patient study can easily acquire it. And that the Greeks always named a man from his occupation, profession, or teachings.

Thus, Skepticus came by his name, which means, I believe nothing.

These, gentlemen, are but few of the facts we have learned from these ancient Greek fossils, and there is no telling what may not yet be discovered fossilized in some stratum. We believe there will yet be found the fossil of our useful velocipede, and the long-lost remains of a useless honest man. It is from the fossils of one of these ignorant Greeks, Pythagoras, that we get our first knowledge of the solar system, namely: That the sun occupies the centre of the planetary system, and that the earth is a planet revolving round the sun. Two thousand years after Pythagoras lived, Copernicus stole this knowledge, and gets the credit for the discovery, while all our astronomers share in the theft. Still, they cannot be blamed, as among mankind, the practice is to steal the knowledge and ideas of others.

We learned from these historical fossils, that even Pythagoras stole most of his astronomy from the Egyptians; and they pilfered theirs from the Chaldean shepherds, who not only watched their flocks by night, but, like all shepherds who study astronomy, laid on their scientific backs, gazing up at the inside of a concaved envelope, like the inside half of a sky-blue speckled hen's egg, are in the habit of doing. Shepherds always did this during the reign of the Shepherd Kings. This, of course, is unlike the habits of our shepherds, whose superior intelligence and advanced civilization cause them, instead of lying on their backs looking at the stars, to lie to the man who hires them, and let the more intellectual sheep take care of themselves, while they engage in our more advanced scientific pursuit of "high-low-jack" and "draw-poker."

Prof. Credo tells us, that from his study of these historical fossils, he is convinced that the Chaldean shepherds stole their astronomy from the Chinese, and accounts for it in this way: The Chaldean shepherds used to drive their sheep to the Chinese market, and, no doubt, that some of them, having sauntered into some of one of the many Chinese observatories, gained astronomical knowledge, which they carried back with them to their sheep ranches. For, he says, that the Chinese had been studying astronomy thousands of years before a Chaldean shepherd came into visible existence, or had a back to lie on; and

had anticipated the Greeks by over two thousand years. There was one Chinese Emperor, who reigned three thousand years before our era, who studied the motions of the celestial bodies. Another, Hoog Ti, 2600 years B. C., built an observatory for the purpose of correcting the calender, and appointed one set of astronomers to observe the course of the sun; another set that of the moon; another that of the stars. It was then observed that the 12 lunar months did not exactly correspond with a solar year, so they intercalated 7 lunations in the space of 19 years to restore the coincidence. This Emperor also, created a mathematical Tribune for promoting the science of astronomy, and for regularly predicting eclipses. The members of this Tribune were made responsible with their lives. If they made a mistake they suffered death.

Another Emperor, Yao, who reigned 2,317 years B. C., ordered his astronomers to observe the motions of the sun, moon and planets, so as to determine the exact length of the four seasons. They made the year to consist of 365¼ days; also divided the circle into 365¼ degrees; so that the sun daily described in his orbit an arc of one Chinese degree. Their common year consisted of $364\frac{3}{4}\frac{4}{9}\frac{8}{9}$ days; and by combining this number with 365¼ days, they found the period 4,617 years; after which the sun and the moon would occupy the same relative positions.

As Prof. Credo is still here, we will ask him whether or not we are correct in this.

Prof. Credo Sustains Prof. Jubal, and Further Criticizes Modern Boasting of our Advanced Civilization.

Prof. Credo—Yes, Jubal, you are correct, and, in addition, the obliquity of the elliptic was made or discovered by another rice-eating Chinese astronomer, Tcheon Kong, eleven hundred years before our era, to be 23°. 54'.3" 15". a result which perfectly agrees with universal gravitation. Another observation was made of the winter's solstice in the heavens, and it corresponds to within a minute of a degree with the calculations of Laplace. Eight hundred years before Nebucadnoser the Chinese recorded eclipses, and Confucius records a series of

thirty-six, thirty-one of which have been verified by modern astronomers.

See what is being discovered of the knowledge possessed by past peoples. See what the excavations of Nineveh have brought to light. See the "clay book" of the Assyrians, those "Romans of Asia." Large numbers of these "clay books" have been discovered, filled with records written in such minute characters that we are forced to the conclusion that the writer—or printer, more correctly speaking—must have eked out his natural powers of sight by the aid of a microscope. These clay tables or books were arranged in libraries and properly numbered, so as to aid the student, precisely as in modern times.

These clay tablets were oblong, the writing or inscription being, like our stereotype plates, executed upon one side of them only. But this was not always the case, as Layard and others describe clay records of various shapes, some of them perfect cylinders, some six-sided; one of the latter shape, although a small one, having sixty rows of characters inscribed upon it, so minute that a magnifying glass was required to enable the eye to define the exact outlines. These clay books contain hymns to the gods, dissertations upon animals, stones, vegetables, and also recitals of travel.

Above all, we find set forth upon these almost imperishable pages, theories of astronomy, which was a favorite study with the Assyrians and Babylonians, and in prosecution of which they manifested wonderful diligence and acumen, making computations which in point of far-reaching exactitude challenge the admiration of modern astronomers.

The cuneiform, or wedge-shaped characters of the ancient Chaldeans [3000 B. C.], called the "arrow-headed letters," were written or impressed upon clay tablets while soft by means of a metal stylus.

How know we but these Chaldeans had paper and printing presses, and made books from these tablets, but which, being more perishable, are lost? The Chinese made paper and printed their historical and scientific records upon it centuries before what knowledge we have of the Chaldeans.

A people who can engrave their language, on any substance, in characters so minute as to require the aid of a magnifying glass to read them; to record their thoughts, their histories, their dissertations upon all subjects: natural history, travel and discoveries in astronomy, could certainly have discovered that with some simple compound of colored substances they could make impressions of these characters by pressing papyrus, parchment, or paper upon these tablets. These tablets were regularly paged, the last word of each page being carried over on to the next. They were regularly numbered into chapters and headed with the subjects treated upon. There can be no reason to doubt that these tablets were the stereotype plates of their printed works.

The fact is, Jubal, we moderns, and particularly you modern philosophers, are a trifle too arrogant, too much given to boasting. We talk as if there were no knowledge; no scientific light shining in the world until we lit our penny-candles; and in nine cases out of ten we have stolen the tallow and wicks from some ancient scientific Chandler's shop. You modern philosophers seize upon the imaginings of an old pagan philosopher; you fill an infinite space full of atoms of whose existence you know nothing, and with these atoms each one of you have a patent for making worlds. You find man with his great brain; his reason; his ability to judge of the What, the How, and the Why; you call him the "Wonder and glory of the Universe," yet, you deny this wonder to be the work of an Almighty Intelligent Being. To find the origin of this wonder, Man, you go crawling and scratching among the worms; scraping the marine rocks for sea-squirts; dissecting the fish, and prowling among the monkeys. You all find origins, but quarrel as to the right one. With your new fangled Evolution, you take some of those imaginary atoms, aggregate, evolve, and transmute them, until you get a living thing so small, that, as Huxley says: "One drop of water can contain more of them than there are human beings on the earth." You continue evolving this atom of living matter till you get it to a structureless speck of jelly, from the underside of which, you gather film, and, with it, form the mind of this "wonder of the universe." The essence of your sense of Evolution being that of perfecting you claim, that as the

ages roll along, man has been attaining a higher and greater power of intelligence ; yet to-day, you seize upon the knowledge of these ages. You gather the records of the past, and with them you mold, dress, and build up, what you call "New Systems of Philosophy." You climb upon your mole-hills and think you have ascended mountains ; when with loud voices you shout to the world, "Come and behold what great men are we !"

Jubal, man must have known something in the past. His brain must have approximated at least, in some trifling degree, to that of we moderns. He must have been pretty well "evolved," as Mr. Darwin says, ages upon ages before the pyramids were built. Exactly when they were built your historical fossils do not reveal. The very heavens have changed since they reared their cloud-capped heads. The pole star is a new comer to them. They stood, like eternal monuments of man's past greatness, when the Southern-cross disappeared from the shores of the Baltic, and for aught we know, were listners to the morning stars, when they first sang together the music of the spheres. Our seekers after knowledge with their "more evolved and perfected brains," are endeavoring to gather some glimmerings of the intellectual light which illumined, what we arrogantly call, "The darkness of the past." We speak of the Lost Arts. We are digging and delving among the ruins of the works left us of past peoples, and when we find a fragment which has escaped the destroying hand of time, we ask: What may these people not have known? How know we but that the electric telegraph once carried the messages of man around the world? How know we but that the steam-god once rushed o'er hill and dale? How know we but the mighty ocean once felt the pulsations of the heart of this god? How know we that ancient man knew not that the earth rotated upon her axes?

According to the theory of Creation, which we hold, the world has, since her creation, been rotating on her axes in about 23 hours and 56 minutes and 4 seconds. Galileo found nothing new. The old Roman astronomers knew that it took our earth 365 days, 5 hours, 48 minutes and 48 seconds, to travel in her orbit round the sun; the

Chinese, though, had found this out over three thousand years before a Roman astronomer was ever born. And, although the Romans knew this, yet, they did not divide the time into months correctly under what is known as the "Old Julian style." Because in 1582, A. D., one of those superstitious, creation fable-believing, Romanist Popes, who believed that Solomon knew what he was talking about, found that something was wrong, as at the Council of Nice, in the year 325, A. D., the *vernal-equinox* fell on the 21st of March; but in 1582, A. D., it fell on the 11th, he thus knew it was not correct. He knew that the Julian *is* was not what *was*, or it would be something "new under the sun." So, Pope Gregory XIII, to correct the calender, as the Chinese had done thousands of years before, dropped ten days so as to bring the real equinox, thus getting the *vernal-equinox* in the time of year what it always was.

To find the *is* in nature, is what all astronomers have been trying to do before and since. They know that the laws of nature are absolute, uniform and constant; that nature never fails; so they know when they discover the *is*, that it always *was*. We Christian astronomers say from creation. Still, whether or not Pope Gregory was right, some persons would not, under any circumstances, believe anything a Pope may say, Because as these persons declare, "these Popes try to keep the people in ignorance, are opposed to education, and build schools and colleges for three purposes, and, had they a chance, would burn Bob Bangyoursoul's ten cent instructors in true philosophy." These persons also say, that "these Popes have always been bitterly opposed to science." There may be some truth in this, Jubal, and these persons may be justified in their dislike of Popes, because there was one of them named Paul V, who got after Galileo for finding out that the world moved and rotated on its axis, so if this Pope was not opposed so science, why did he get after Galileo? Why did he shake his Crozier at him, and tell him "to go on with his scientific labors, to write freely, but keep outside the sacristy?" These Popes are all alike; what one says and does, the other never alters or changes; they have been saying the same things about what they call their "One Faith," ever since St. Peter. So, when Galileo undertook to get into the sacristy with his science, they got after him.

There was the next Pope, Urban VIII, who acted towards Galileo in a shameful manner, abusing, and treating him with such kind consideration and marked distinction, that he admitted him to six long audiences in the course of two months; ordered him to say his Prayers once a week for three years, and when he dismissed him, gave him a letter to the Grand Duke of Tuscany, praising the astronomer for his great learning and exemplary piety. At this time Galileo was 70 years old, and this unfeeling Pope granted his son, Vincenzo, a pension, but afterward transferred it to Galileo himself, during life.

Prof. Credo Accounts for the Historical Fiction that Galileo Stamped his Foot on the Ground and Exclaimed, "The World Still Moves!"

The only reason, Jubal, that can be assigned for Pope Urban granting Galileo this pension, is, that during his sojourn at Rome, the Pope had just finished reading—from this fact, one would infer that some of these Popes can read—the *seventh* edition of the *Historical Dictionary*, published at Caen, in 1789.

This *seventh* edition, which had reached the Pope 147 years after he and Galileo were both dead, related the historical fact (?) that "when Pope Urban read the sentence which was enjoined upon Galileo—'that he should recite once a week for three years the seven penitential psalms'—that upon rising from his knees, Galileo stamped his foot on the ground, and exclaimed, '*E pur si muove!*'" It was fortunate for Galileo, in the year 1633, that the *seventh* edition of this truthful Dictionary, published in 1789, was just out, and that Pope Urban happened to be a subscriber for it, because if Galileo had not stamped his foot on the ground, thus getting up the Pope's dander, he would not have gotten the pension. So, from all this, we do not wonder that some persons dislike the Popes. There is old Ezekial Congo, who preaches in the meeting-house down at the cross-roads, even he says that—

"Dem Popes ez Irish; dat dey's de scarlet-beast er de Rebellations; dat dey's got seben heads en ten horns; dat dar feet ez ob clay; dat dey sits on seben hills, and gets drunk on horns fill'd wid de blood er de saints wat wuz poo'd out ez a sac'afice doorin' de Bab'lonish captibity. Sides, dey's de Papis-

tical Antichrist, who's gwinter cum on dis yearth en a tousand years, 'long wid seben Kings ridin' on the seben bulls ob Bashan, who's horns ez ob brass, who's feet ez ob jaspar, en de switchin' ob who's tails ull be like de rushin' ob seben waters."

Jubal, we once saw one of these Popes, but he was not scarlet. He had on his head a sort of skull-cap, so we were unable to see whether or not he had horns, or if his feet were made of clay, because he had his boots on. Neither was he riding on a bull. And although there are seven hills in Rome, he was not trying to sit down on all of them at the same time, that is, when we saw him. Yet we reckon old Ezekial must be right, as he generally is, when he counts the buttons after the Sunday's collection.

PROF. JUBAL CLOSES HIS LECTURE WITH A PHILOSOPHICAL ARGUMENT BETWEEN SKEPTICUS AND DESCARTES AS TO WHETHER OR NOT WE EXIST.

Young gentlemen, we will now close our second lecture. We have been over some of the ground, and gone back over some of it so that you may not forget the road. We have taken quite a walk through some of the labrynths of philosophy. We have been present before and at the birth of this world; present with the philosophical midwives who were in attendance at the lying-in; and although, as we have shown you, that we had the world-child there before our eyes; although we could not see her move, nor lift her, we could put our hands on her; yet the spirit of the law of contradiction was so strong; the condition *sine qua non* so absolute, that we could not agree as to whether she made herself or self-existed herself; or whether she was created by an external agency. But we did agree on one thing, which is, that she was there, wherever she came from—except old Skepticus; he could not believe it yet; and he told us: "It was all imagination and illusion; that some day we would find this out; though he did not believe we would, as there was nothing to find out, and no one to find it; that if we wanted to be cranky and philosophical about it, he would let us know that he did not even believe this."

One of the make-yourself philosophers asked him: "Do you not believe the evidence of your own senses?" Skepticus snarled

at him, and said: "No! I don't believe I have any senses. There is that old fricasseed-French-frog, Descartes, who says: 'Whatever thinks, exists.' One day, after he had gotten through with his mess of frogs, I asked him: How do you know that whatever thinks, exists? 'Because,' said he, 'nothing can think without existing.' Well, I asked him: How do you know that? 'Because,' said he, 'what does not exist does not act.' But, I asked: How do you know that? Are you certain that *you* exist? 'Yes,' said he. Can you prove it? I asked. 'No,' said he. Why can't you? asked I. 'Because,' said he, 'Our existence cannot be demonstrated. Like matter, it is impossible to prove its existence by reasoning; but I am conscious of thought. This thought is my soul; *I am.*' But, said I, how is this? If he who *thinks* he reasons is not certain of his own existence, he cannot be certain of his own reason, nor be sure that he is thinking. When you attempt to prove by consciousness the existence of thought, and then endeavor to prove your existence by the act of thinking, you fall into a vicious circle, by saying, 'you are conscious of thought, therefore you exist,' which is the point in dispute. That which requires proof, is in doubt. Your effort to prove that you exist, shows that you are not sure of it. Consequently, as proof supposes reason, and as you cannot demonstrate nor prove by reason that you exist, your existence is doubtful. 'Not so,' said Descartes, 'because I am conscions of thought, and without existence there can be no thought.' Why, my lover of frogs, said I, I have just shown you that this is what you have to prove. You have to prove that you are *sure* you are thinking, before you can prove that you exist. Thus I got old Descartes where the true metaphysical reasoning wool is abundant. Yet, at the same time, I don't believe that there ever was any Descartes, any consciousness, thinking, nor existence to prove. I tell you, gentlemen, Democritus was right when, one day, he said to me 'we know nothing, not even if there is anything to know.' And when you philosophers get down to the primal essence of philosophy, you will find this out, though I don't believe you will. And I tell you further, still I don't believe it, that true philosophy consists in believing that you don't believe there is such a thing as philosophy."

Considering that, as yet, we philosophers have not agreed upon what constitutes true philosophy, we are inclined to think that Old Skepticus got a trifle the best of that philosophical argument.

Young gentlemen, before closing our lecture, we desire to state that as we are now approaching the death of this, and the formation of a new world, it will be necessary that you should learn by what means these results will be brought about. Mr. Spencer tells us they will be effected in this way :

"As the process of Dissolution forms the complement of Evolution, it will undo what evolution has done. The World after reaching its equlibrium by Evolution, will, by Dissolution be dissipated into the attenuated matter, out of which it arose. Motion, as well as matter, being fixed in quantity, the change in the distribution of Matter which Motion affects coming to a limit, the indestructible Motion will necessitate a reverse distribution, and bring about conditions under which a counter movement will commence."

Thus, you can understand, that Matter by entering into new relations must necessarily produce new and novel effects.

As the fundamental principle of philosophy is, that all the changes ; all the varied manifestations ; everything in what we call nature, is governed by law. Before you can fully understand how, through law, these results will obtain, you must understand what Law is in itself ; also, that neither nature, nor her so-called laws are immutable. But we shall let a more eminent philosopher than ourselves show you this.

One day, we were invited by Prof. Credo to dinner, for the purpose of meeting a great metaphysicical philosopher, Prof. Yag. After adjourning to the study, and while the company were indulging in that vile habit of smoking cigars—we, young gentlemen, smoke a clay pipe—the conversation turned upon Mr. Spencer's "New System of Philosophy." Prof. Credo had been criticising, quite sharply, that part of it relating to the Nebular Theory. Wherein, "As often as matter entered into new and novel relations, so often would non-existent or even impossible laws become existenrt possible and necessary."

This, Prof. Yag attempted to prove, by showing what Law is in itself. The discussion continued for some length of time, and we being both interested and instructed, invited these gentlemen

to repeat the argument before our class, which they kindly consented to do.

Therefore, to-morrow, a portion of our time will be consumed in listening to their remarks.

End of Second Lecture.

LECTURE III.

PROFESSOR YAG DEFENDS MR. SPENCER'S PHILOSOPHY. ENDEAVORS TO ACCOUNT FOR THE BIRTH, LIFE, DEATH AND ANNIHILATION OF LAW; AND CLAIMS THAT THE LAWS OF NATURE ARE NOT IMMUTABLE.

PROF. JUBAL.—Before introducing Prof. Yag, we desire to say, that the Professor is a disciple of Mr. Spencer, and warm advocate of his philosophy. Gentlemen, allow us to introduce to you Professor Yag.

PROF. YAG.—Young gentlemen, in compliance with the request of your teacher of Philosophy, Prof. Jubal, we will endeavor to repeat the argument had with your teacher of Mathamatics, Prof. Credo. We might first state, that the discussion grew out of the adverse criticism by Prof. Credo, of Mr. Spencer's Philosophy.

The Professor contended that certain forces or laws of nature which once were non-existent, could not become existent without an act of creation. Our argument ran about like this:

We said, "Prof. Credo, you, like all those who assail Mr. Spencer's philosophy, do not understand him, do not gather his meaning. Notwithstanding, Mr. Spencer says, that non-existent or even impossible laws came into existence, he does not mean *absoluta*. These words must be taken in connection with the whole context of his writings, to enable us to discover his meaning.

The trouble with Mr. Spencer has been, he has taken for granted that his readers would understand what he means, when, for example, he affirms, that under certain conditions, at different periods during the evolution of the nebula, he means to convey the fact, that at each and every stage of that evolution it must of necessity require, and would receive a new action or manifestation of Force; thus producing changing results. Such as, for instance: Evolution produced our visible world from No-beginning, that in evolving it from a homogeneous mass of

nebutous matter into its present heterogenous condition, there would, during its course at each stage of that evolution, come into existence an infinite number of new laws, which were non-existent and even impossible at a previous stage.

Mr. Spencer is a profound thinker. The conclusions which his mind reached were so clear to him, that, as Prof. Jubal, when speaking of Prof. Bunsby, said: "He has relied too much upon the logical acumen of his readers to gather them from the words in which he has presented them" We will, therefore, endeavor to reveal what lies hidden in Mr. Spencer's philosophy upon these points.

Mr. Spencer, as you know, accepts the Self-existence theory; starts from the basis of an uncaused, No-beginning of Life or Anything; and, as Universal Evolution is the negation of the *absolute commencement of anything*, he holds, that once the whole universe (space,) was filled with primordial matter in a certain condition of disorder; in fact, in chaos; that the future order, which is the present to us, of that disorder in matter, was brought about by the law of Evolution. Now, it was the peculiar process of this law affecting that primal No-beginning, chaotic or nebulous mass of primordial matter, which constitutes the principles of Mr. Spencer's "Synthetic Philosophy," or the building up of No-beginning worlds, and our present existing order and harmony in nature. So, for the purpose of fathoming the depths of Mr. Spencer's thoughts, it will be necessary for us to understand what Law is in itself, or, rather, not in itself; for law, in itself, is nothing.

We shall examine into what we call Law, both in the real and intelligent orders, and endeavor to show you how, in these orders, law comes into existence, lives, dies, and is annihilated. In our remarks, we shall address ourselves more particularly to Prof. Credo.

WHAT IS LAW?

In nature, or the material order, it is the constant and uniform mode or order according to which an energy acts or operates, such as what we call the laws of motion, gravitation, attraction, repulsion, etc. "In the intelligent order," to quote your own words, Prof. Credo, "law is a *fiat* of a power, a rule of action

prescribed by a Supreme power, be the personality of that power what it may. When an intelligent power formulates a rule of action or law, it contemplates that, when enforced, it will affect not effect a certain event, and no other, as a law can affect that only for which it is a law, both in the material and intelligent orders."

Law, according to the general idea of mankind, is a cause which produces effects. This is a vulgar error. Law, in its essence, is a power which is executory and affects only. It is neither a cause nor an effect. Law in itself does nothing, is nothing. When what we call law comes into existence, it is then, as we may say, *felt* as a power which acts and executes, and consists, as Prof. Platt says: "In doing or being, not in not doing or not being." When we say Law, we merely formulate in words what a certain force will do under certain circumstances. There is an inherent principle in the forces of nature, which causes them to act in the same manner under the same circumstances. This, however, is not law, but the nature of the forces themselves.

We shall, Prof. Credo, use the term Law, as that power which is doing or executing. When the reason of a law *ceases*, the law itself *ceases*. In other words, where nothing is done, nothing is affected; where something is done, something is "*a*ffected, not *e*ffected," as you correctly stated.

Now, this executing, this energizing power in nature, is what Mr. Spencer calls "Force," whose essence is to act, and although he says: "Force, nor anything else, ever had a beginning; never came into existence, nor will ever cease to exist. Still, he does not mean, No-beginning in an absolute sense. Mr. Spencer, as we have stated, has been compelled to use terms which are within the power of the comprehension of his readers. Knowing, as he does, that the *primum philosophicum* is and must be a synthesis, he has been compelled to make this ideal formulæ, and reason from a new and original metaphysical foundation. Consequently, his synthetic judgments must be understood in a Spencerian sense.

As something can not come from nothing without creation, which Mr Spencer's philosophy denies, it therefore follows, that the Something which is Everything, always *was*, still, in the Spen-

cerian sense, this executory power, this law, can come into existence, have a beginning, and *affect* this uncaused Something, which we call Matter, so as to produce seeming *effects*, which to other minds would appear like a beginning. Mr. Spencer's mind, although being quite anylitical, still, he has synthetically built up his "New System of Philosophy," which to understand, requires to be analyized, which we will endeavor to do, and get down to the original elements of Mr. Spencer's thoughts.

As this power, Law, cannot come from nothing, where does it come from? It comes into Existence from Resistence, and is born of Disorder. It comes into existence at all times and in all places where discord prevails. Order and Law are entirely two distinct and different modes or states of existence. In fact, Law is the very antithesis of Order. Where order prevails, there exists no law. In an infinity of order, or of immutable being, there can exist no law. Let disorder enter, and law leaps into life. Mutability is the twin-mother of Time and Law. Law being nothing in itself, like Time and Distance, it comes into existence when needed by the changes in mutable things. Destroy the aggregatious of matter forming bodies, and you annihilate time and distance. Destroy disorder, and you annihilate law, each is born of mutation.

This doing power; this law is, as Prof. Platt says: "As many as the waves, but one as the sea." Destroy these many waves in the mutable ocean of nature, and the visible universe would relapse into the one—chaos. In the process of Evolution Mr. Spencer says:

"From the time when the process of Evolution first began; from the time before the nebula had showed any signs of commencing; every subsequent change or event of evolution was *necessarily* bound to ensue, else force and matter have not been persistent. Matter primordially uniform, has itself become heterogeneous; and in as many places as it has thus changed its state or condition, it must, in virtue of the fact, give rise to other hitherto novel relations. Thus, these newly established relations would necessarily *of themselves*, give origin to *new* laws. For whenever two given quantities of force and matter meet in one of these novel relations, they would of necessity give rise to new and novel effects."

We must caution you, Prof. Credo, that Mr. Spencer does not mean "commence and began," because that which always

was cannot *begin* to be; but he means "began," somewhat in the sense as used by Mr. John Stuart Mill, who says, that "although everything *must* have a beginning, still there is a permanent element which had no beginning, but which enters as a *con-cause* into all causations." This No-beginning causing power which Mr. Mill terms a "permanent element," you Christian philosophers would, of course, claim to be the First, Final Cause—God; but, Mr. Mill says, "it can be no other than Force." Mr. Mill, great logician, as he is, made a serious mistake, and has compromised modern philosophy, in stating, that "causes, as well as effects, had a beginning in time, and were themselves *caused*," and then afterwards admitting, that "there is in all of them a permanent element which had no beginning," thus leaving open the claim of you Christian philosophers, that the universe and its laws existed eternally in, as you say, that "tremendous Origin of Things, the Mind of God." Still, understanding "began," in those other several senses, you can conceive how a No-beginning can begin; how a non-existent and impossible thing can become existent and possible; and how these new laws could affect the primal matter at each stage of its evolution. Also, as law is nothing in itself, neither a cause nor an effect, and never coming into existence before the event, you can understand how law can *affect* the event which has already been *effected* in the No-beginning matter by evolution, after it *began* to be. This may, as yet, not appear clear to you. It may be too extreme an illustration of nature's fundamental law of Contradiction. If not fully clear to you, it is owing to your not accepting the basis of Mr. Spencer's philosophy, namely, "That life nor *anything* ever had a beginning."

As order is not produced by Law, it shows us why Mr. Spencer's philosophy denies Pope's line. "Order is Heaven's first law." This may do for a poet, but not for a philosopher. Heaven can be conceived of only as a place, or rather a state of existence of eternal, infinite, immutable, intelligent Being. Order reigns *absoluta*. There can be no first, nor any law in the sense which mankind understand it. But let disorder enter by resistence, as is said in the case of the rebellion of Lucifer, and the law affecting it becomes existent. When the disorder ceased, the law died, as the reason for it ceased, and order again

reigned Supreme. If Pope meant that this was the *first* law ever fulminated in Heaven, we can understand him. Law and Order then, being two seperate and distinct states of being, is the reason why Mr. Spencer's philosophy also denies the Rev. Prof. Flint's assertion, that "Order *is* Law," because under no condition or state of events can law and order exist together. While disorder may exist in the absence of law, law cannot exist in the absence of disorder.

Now, Prof. Credo, this co-called law, this power, force in nature, in whatever condition of disorder it may exist is, during its existence, absolute and inexorable from its very essence. It demands obedience and brooks no violation; each separate law punishing with a penalty of its own, violation of that for which it is a law. And so arbritary and exacting is it, that ignorance is no excuse. Existing and effecting, as it does, gravitation, jump you from a tower and it will hurl you to destruction. Ignorant of its existence, affecting the phenomenon of heat, thrust your arm into a fiery furnace, and its law will consume it. Ignorant of the laws existing and affecting force and motion, stand you in the way of the rushing engine, and it will crush and mangle you. Human laws are born of the same parent, Disorder; and they contain within them the same principle. The maxim of jurisprudence being *Ignorantia legis neminem excusat.* Ignorance of the law excuses nobody.

Prof. Platt says: "If Blackstone be correct, Law is neither a cause nor an effect; but, as a volition, is *sui generis.*" Blackstone is correct. Should you go back to the origin and existence of law among mankind, you will find its ultimate source to be Will. The volition of the will of a Supreme power, be that power what it may; the will of the master to his servant, or the ukase of an autocrat to his serfs is human law, and is Will. In the order of nature, you, Prof. Credo, as a Christian philosopher, can, consistently with your belief, trace nature's laws back to the reason, will, and volition of a Supreme Law-giver, and, like Blackstone, say: "When God put motion into matter, he established certain laws of motion to which a moveable matter must conform." St. Thomas says: "God imposed certain laws *on* matter." In either case, let us ask? Did these forces or laws which were put, established, imposed, either *in* or *on*,

cause the existence of the matter? You answer, "No, as matter must have existed before the law." Then, for what were they established? "To *affect* the matter." True, and it is very plain, thus: A cause contains all that is contained in the effect; the effect being potentially in the cause; consequently, if as Prof. Platt says: "The law of a thing is inseperably *in* the thing itself." The law of the thing would be both the cause and the effect, and, in the intelligent order, be that for which it was brought into a subsequent existence by the will of an intelligent Supreme power to *affect*. Therefore, if we get back to the ultimate origin of law, Prof. Platt must be in error, because if Law be the volition of a Will, the will must exist prior to the law, and also to the thing for which this Will produced the law to affect.

But let us examine into these words of Blackstone, that "God put motion *into* matter." Also, Prof. Platt's idea, that "the law of a thing, is inseperably *in* the thing itself."

Blackstone could not have meant, that God put or imparted motion *intrinsically* to matter, but, as St. Thomas says, *on*, or *extrinsic*, to affect matter. If the law of motion was intrinsic, not an atom of the universe could be at what we call rest. No thing possesses the power of self-motion.

Throw a pebble in the air, and you impart to it an extrinsic force, causing motion; when this force is exhausted, this pebble ceases to move. If motion had been imparted intrinsically to this pebble, it would continue in motion forever. You might as well try to create this pebble, or any body, as to impart intrinsically to it an essence which it has not possessed from all eternity, or, as you say, from its beginning—Creation.

Impart motion intrinsically to a body, and you have the long sought for perpetual motion. We desire that you remember this when we come to applying it to the forces or laws affecting and controlling material bodies; also, what is termed Force of the Will; for, like the pebble, force can not act without an object on which to act; neither can the will act without something existing which it can *affect*.

We have said, that law is nothing in itself. It, therefore, never anticipates. Is never before the event. It comes when occasion needs. Thus, the laws of Moses did not come until

after the conditions of mankind were such, that they needed them. The immorality of the Hebrew people at that time, was an event, and the moral laws of Moses came to affect those evils, those disorders. You are now endeavoring to produce laws to affect the evil or disorder arising from the presence of the Chinese in your community. If the event of their presence had not occurred, no law could possibly come into existence in California to affect Chinese. What we insist upon is this, that law is nothing in itself; has no proper existence, and is not contained *in* things. Like *time*, it exists only in the mind. When law has, what we call existence, it is extraneous, and exists only when disorder exists.

For example: Let us take a community of people with all their several existing laws to affect their several disorders, from a purse snatcher to a murderer. Let a new and heretofore unknown evil or disorder arise in this community. So far, Order would die, as yet, of course, no law exists to affect this new disorder. It is unknown to the law. What the Supreme power does not forbid, is not amenable to it. Now, this new disorder having come into existence, and there existing no law, no rule of action prescribed by the will of the Supreme power to affect this new evil, it can not be punished nor suppressed. No other law can effect it, as a law can affect that only for which it is law. Remember, *law*, in this case, is *non-existent*, and the disorder reigns in its absence. Now, Prof. Credo:

What follows this event?

"Law."

How brought into existence?

"By the supreme power contemplating, formulating, and *willing* a rule of action."

For what?

"To *affect* this new disorder."

But, supposing this disorder ceases, dies, before the supreme power gives birth to the child, Law?

"Why, then, the law-child will not be born."

Then, did law *cause* this disorder, or *effect* its death?

"No."

But why not?

"Because it never existed."

True; but where was order all this time?

"So far, it had died."

But when the disorder died, and law affecting it had not yet come into existenc, where was order then?

"Why, it came again into existence."

Then law cannot exist in a state of order?

"No."

But why not?

"Because there is nothing for it to *affect*; nothing upon which to act."

Then, disorder can exist in the absence of law; and order exist in the absence of both?

"Yes."

But why?

"Because, Order is the eternal essence, both in the spiritual and material orders. Order is the antecedent of both disorder and law."

Then, law is *not* order, nor is *order*, law; nor is the law of a thing *in* the thing itself.

Law then, being nothing in itself; in the intelligent order, among mankind, it comes and goes with the disorder which gives it birth. You will find that it does the same in the natural order, and is the offspring of mutability. Change, is disorder, and there is no such thing as immutability in the order of nature. Nothing finite is immutable, and cannot be from its very essence.

The immutability of nature's laws has been accepted as the scientific faith, and is still so accepted by many; but Mr. Spencer's philosophy rests upon the foundation, that everything is mutable; that things change and become other than what they were. "Changing," as he says:

"From the homogeneous to the heterogeneous; from the undetermined to the determined; from the indefinite to the definite; from the incoherent to the coherent."

While at the same time, "there is No-beginning of anything." But, as yet, few persons have been able to understand him, on account, as we have already stated, of the terms in which he has been compelled to clothe his ideas. So by diving down into Mr. Spencer's thoughts, we shall find that the essence of his

philosophy denies the immutability of nature and her laws. Evolution means change; Immutability means unchangeableness; not subject to change, and is, therefore, the negation of Evolution.

Before going further, Prof. Credo, in order that you may not misunderstand the fundamental basis of Mr. Spencer's philosophy, we will give you his own words. In his "First Principles" he says:

"It is clear that by *Self-existence* we especially mean an existence independent of any other, not produced by any other. In thus excluding the idea of any antecedent cause, we necessarily exclude the idea of a beginning. *Self-existence*, therefore, necessarily means an existence without a beginning. The assertion of *Self-existence* is simply a denial of creation."

There is no mistaking Mr. Spencer in this; because, when taken to task by Dr. Child, of Oxford, who says, that "Mr. Spencer cannot evade the admission of a commencement of organic matter on the globe," Mr. Spencer answers his reviewer and says:

"The absolute commencement of organic life on the globe I distinctly deny. The affirmation of Universal Evolution is in itself the negation of an *absolute commencement of anything.*"

Mr. Spencer is spoken of, by his English admirers, as "Our great philosopher." He has earned this distinction in having, from a No-beginning premiss, produced by Evolution all the various existences of which we know in nature; from an Eozôôn to a mammoth; from a globule of frozen mist to a burning sun, without having recourse to an external agency. Thus avoiding, as he says: "The necessity of creation to account for them." It is in this wherein lies the merit and consistency of Mr. Spencer's philosophy.

But as we are examining into law, if you think a moment, Prof. Credo, and commence with Mr. Spencer; commence with a No-beginning mass of inert matter in a homogenous state, in an undifferentiated form, which, of course, at that time *was* nature whole and entire in a condition of mutability, subject to change, you can see that whatever law, if but one, which then existed, must have been a mutable one; and during the progress of the evolution of this matter, whatever laws came afterward into existence to affect it, thus producing No-beginning exist-

ences, must also have been mutable laws, changing as often as the matter changed. Thus, by Evolution, Mr. Spencer has evolved this matter until it has produced our solar system, our world, and everything in and on it, and his philosophy continues to evolve our solar system, until it reaches its equilibrium, when Dissolution, or more correctly speaking, Involution, will dissipate it into the attenuated matter out of which it arose; thus proving the mutability of nature and her laws. But if the laws which have brought about the various changes in a mass of No-beginning matter, and produced all the various forms, organic and inorganic, which we find existing in nature, and will continue changing these forms, were immutable, Mr. Spencer's philosophy would fall to the ground.

Laws of Nature not Immutable.

The imagination refuses to picture change in immutability. The human mind can conceive of what may be possible, but the imagination declines to paint the picture upon it of the possibility of law governing or affecting immutability. Thus, in your heaven, Prof. Credo, there can be no law, as there can be no change. Its condition of existence being the essence, the plenitude of immutable Order. If nature and her laws were immutable, she would cease to be nature. An immutable creature would be no creature. Endow nature with immutability, and she would be in one grand illimitable, eternal, *necessary* state of existence, or perfect order; unshackled by law; her changes mere illusions; and her existence a mere creation of the mind; or else, she would be the One, infinite, absolute being, and all existences mere forms of the Infinite. The first is Idealism; the second, Pantheism.

Idealism is a system of philosophy which denies the objective existence of the external visible universe, and asserts that all objects are mere creations of the mind. It is the deification of the *me;* the absorption of all reality in the *me;* the representation of all phenomena being in the *me;* these being but the determinations of each identical *me.* Outside the understanding there is no reality, and the *me* is only *me* in so far as it is conscious of itself.

Pantheism reduces all existences to an absolute unity, there

is no multiplicity of beings. There is but one Infinite and absolute Being, and what we call Finite existences, are but the existing forms of the Infinite. It makes nature God; the material as well as the cause; the clay as well as the Potter. This world and all it contains, are but the forms in which the Infinite at each successive moment exists. When a man dies, he sinks into an abyss of being as a drop of water is lost in the ocean.

Mr. Spencer's philosophy is not pantheistic nor idealistic. It places behind and beyond this mutable universe an Unknowable Reality, and teaches that nature and her laws are but modes of this Unknowable Reality. You, Prof. Credo, do the same, except that you claim an Eternal Self-existing Intelligential or unbodied-mind—Spirit—the Deity, who created the universe, which is the work of his hands. Your religion rests upon the foundation, the dogma, that God, the Supreme Intelligent power; the Final, First Cause, established laws for the government of finite and mutable things; laws not to *e*ffect them, but to *a*ffect them; and also, that he ordained, decreed, and revealed special laws to mankind, and prescribed penalties for their violation, saying, "If thou doest these things, thou shalt die."

While you hold that even He cannot change an eternal immutable truth, at the same time, you hold that He can change, suspend, supersede or render non-effective the forces or laws which he has imposed on nature, which, of course, implies that the world and the laws which he has decreed for its government are mutable. Whatever other powers you may attribute to this Supreme Being, He cannot impart immutability without imparting his own attribute. If the world and its laws be immutable, even He cannot change them, He cannot change his own essence, He cannot do that which involves a contradiction.

While Mr. Spencer was compelled to adopt an existing Something as an Ultimate, his great desire to reconcile science and religion, prevented him from admitting that this Ultimate Something is intelligent. So he terms it an "Unknowable Reality which manifests itself through Force, alike in the material and in the mental domain." Thus, Mr. Spencer is no Spiritualist, no Idealist. He is a thorough-going Realist, and says: "If Idealism be true, Evolution is a dream."

As his philosophy denies the immutability of nature and her laws, like ancient philosophy, it affirms: that the so-called harmony of the universe has arisen out of discord, that, by evolution, Order has been brought out of chaos or disorder.

Let us give you his own words. In his "First Principles," he says:

"Evolution is the transformation of the homogeneous, through successive differentiations, into the heterogeneous, from the indefinite to the definite; from the incoherent to the coherent. There is a constant *conflict* between the forces of which the action is integrating or consolidating and those of which the action is disintegrating. This process is always tending to an equilibrium between the forces, and ultimately to a dissolution. * * * "The solar system is a moving equilibrium, which is destined to be dissipated into the attenuated matter out of which it arose."

Thus, you see, Professor, that the natural laws which came into existence during the evolution of the solar system, [those which had become useless, of course, disappearing, as there was nothing upon which they could act], came on account of the several changing conditions of the conflict or disorder, between integration and disintegration. So, in whatever way the event of the world's existence, as a world, was produced, that event must have occurred *before* the existence of the laws which *now* affect, govern, and control it.

Now, let us test this by examining the laws which is said to govern our solar system. It has been the universal scientific faith, and is set down in all the books, that "the basis of all science is the immutability of nature's laws, and of events." In proof of this, it is said, for instance, that "Newton could not have discovered, from what is known as Kepler's laws, that the movements of all planetary bodies *can be no other than what they are*, moving impassively from *necessity* in virtue of a mathematical law." We deny this. "Instability," as Prof. Platt says, "is a fact in all things." Let us ask: Did the present condition of the planetary system always exist? Have the planets moved in their orbits always, either from a beginning or from a no-beginning, as they do now? Has there been no change since chaos? Has Kepler's laws always existed? According to your dogma of creation, when God created the

world, he did not create nor decree the laws for its government until after the event. The Mosaic account divides the act of creation into days; there was an interval of what we call Time. It was not until the sixth day that He created all living things —including man.

Take the self-creation theory, this, like the self-existence theory, denies an external agency, and affirms that the cause is in itself. But what was there before it created itself? It could not be that which was *not*, as that which does not exist can neither act, nor be acted on. It could not begin to be of itself, as that which *is not* cannot *self be*. Being cannot be the cause of itself. It is repugnant to say that a being is prior and posterior to itself. If as *cause* it is prior. If as *effect* it is posterior. To be is *before* to do. To give itself existence it must do something. If it produces itself, it must be before its effect—itself. It must be before it is—an absurdity. A thing begins to act *when* it is, not that it begins *to be* when it acts, act being logically dependent upon being, and not being upon act. Therefore a thing must exist before it can act or be acted on by what we eall force or law. This is why Mr. Spencer has rejected both the creation and Self-creation theories as unthinkable, and adopted the Self-existence theory, as the one, if not thinkable, is, as he says, "the most commonly accepted and most commonly supposed to be satisfacfory," and founds his philosophy on the No-beginning of anything.

But, according to either of these three theories, the laws which Kepler discovered were once non-existent, they came when needed. They could not have been existent before the world was created, or at the time of the nebula, nor during the aggregation of the molecules into worlds. If the Nebula Theory be true, the solar system was evolved from a gaseous vapor into suns, moons, and planets, which, at one time, Kant says, "looked like gigantic drops of melted metal, and were millions of times larger than they are at present."

M. Babinet says, and Sir David Brewster approves of it, that:

"The sun was once so large, as to fill the whole earth's orbit, and it took him 3,181 years to rotate; but, by radiation, he has been reduced, so that now he rotates in 25 days, 14 minutes and 8 seconds."

And Helmholtz telts us, that :

"The sun is now reducing, and will diminish, something like one-twentieth ($\frac{1}{20}$) in the next million years, and that our earth must inevitably fall into the sun."

If such has been, and will be the case ; if the bodies of our solar-system are so changing, will Kepler's laws exist when the sun reduces one-half, or when the earth falls into the sun ?

Mr. Spencer says :

"All our Sidereal system gravitate individually and collectively. They cannot preserve their present arrangements. There is no escape from the inference that the structure of our galaxy is undergoing *change*, and must continue to undergo change."

If this be so, then, when all this takes place, will the planetary bodies be of *neeessity* as they are now ?

The advocates of the immutability of the laws of nature will not pretend to say, that when certain events or conditions of affairs are brought about in virtue of immutable laws, that, upon the foregoing mutable changes taking place, the old set of immutable laws will be annihilated, and a new set will, of *themselves*, come into existence to affect the new conditions.

Universal Evolution can not be true, if the laws governing the universe be immutable. Evolution means *change;* Immutabillty is not *subject* to change. With mutable laws to affect mutable things, there is consistency. It is bad logic to say : All finite things are mutable. The universe is finite, and governed by law. Therefore, these laws are immutable.

Upon the basis of mutability, we can uuderstand, how, through all the past manifold changes in matter composing the universe, there must have necessarily come into existence, new laws to affect these changed, therefore, new conditions of matter. Also, as we have said, that new laws will continue to come into existence. Until Evolution has run its course, when still newer laws will become existent to affect the dissolution of the universe ; changing at each step of the regress, until matter reaches its original homogenous, nebulous, or chaotic condition.

Why ! Prof. Credo, your Church teaches nearly the same doctrine, viz. The universe and all it contains, which must include its laws, will, by the power of Him who created it, "At the last day be rolled up like a scroll." Now, if there existed one atom

of matter controlled by an immutable law, it would remain unaffected by any power. The only being of whose existence the human mind can conceive or imagine as possessing the attribute of immutability, can be no other than the One you endow with Omnipotence; the First, Final Cause of all things.

So, as a Christian believer, we ask you, have the laws or forces of nature ever been suspended? Has a higher power ever intervened between the action of these forces and, say, their effects? You answer, "yes." By what power? "By the power and will of the Almighty who created these forces and decreed these laws." If so, and they were immutable, could this power change, suspend, or intervene in their action? "No." Why not? "Because even an Infinite Being cannot do that which implies a contradiction, an impossibility; and for that which is immutable to change, is impossible." That is true, for, as we have already stated: Among all the attributes with which you clothe an Omnipotent power, one is that of Immutability, without which it would not be Omnipotent. This attribute it cannot impart to one atom of finite, mutable, material substance, or that atom, so far, would itself be Omnipotent, inasmuch as its condition of existence would be Immutable.

Further, that which is immutable must be infinite, for, if finite it could change. Whatever exists is finite or infinite, for it has a limit or it has not; in the first case, it is finite, in the second infinite—there is no medium between yes and no. Your Scholastic Philosophy does not deny that bodies may be physically made up of molecules and atoms. But be they what they may, they are finite and mutable. To hold them to be infinite and immutable would be to destroy the foundation of your theory of creation.

Although Laplace says of his own Nebular Hypothesis: "That this is a true explanation of the origin of the visible universe, the chances against it are many thousand millions to one in its favor." Yet, our whole modern philosophy is built upon this hyhothesis. Take away our for granted premiss—that of a mass of matter, self-existing in a chaotic or a nebulous condition has been so affected by Motion, as to produce its aggregation into bodies, and our modern philosophy would be destroyed. The harmony of the visible universe is such, that Chance is not

admissable, and we should be compelled to accept your doctrine of Creation. The human reason would be driven to accept the existence of the universe, as the work af an Almighty hand. Endow law or force and motion with immutability, and Mr. Spencer's philosophy is utterly shattered. Grant it to the forces acting *in* or *on* organisms, and Mr. Darwin's Evolution of Species would be annihilated. If nature be not one vast moving mass of matter, undergoing changes; with no rest, no death, ever moving onward with the resistlesness of fate, Evolution is a dream. Change is the very essence, the life of nature. Change is the antithesis of immutability. Therefore, as we have already stated—when changes take place in finite, mutable things, they can be affected only by laws which change at each and every step and stage of such change—or rather, they must be new laws, as law never anticipates. Law is never before the event. It comes when occasion needs.

Upon what foundation rests the assertion of some philosophers and astronomers, that "the movements of the heavenly bodies can be *no other* than what they are; containing within themselves no principle of destruction, but are calculated to endure for ever."

We say, "yes," if the forces or laws affecting them are immutable; but the science of astronomy proves to us that these bodies change; have not been always as they now are, and will not so continue. If the forces or laws governing these bodies be immutable, what becomes of the assertions of Kant and Laplace, that:

"Our entire Solar System once consisted simply of the Sun. That from the motion of the nebula an immense ring was formed which, like a dish dropped on the floor, broke into thousands of fragments of different sizes, thus forming our celestial bodies."

Allowing this to be speculative astronomy, also, of the received opinion among astronomers, that from the dimunuation in the period of Encks' comet, the planetary bodies are losing motion—a loss which, infinitesimal though it be in such periods as we can measure, will, if indefinitely continued, bring these motions, therefore, our present solar system, to a close. Prof. John Fisk, says:

"The loss of tangential momentum must ultimately bring all the planets into the sun, one after the other; beginning with Mercury and ending with Neptune."

Let us ask: Supposing Jupiter with his four, and Saturn with his seven moons, should, under some new conditions, some natural causes operating within themselves, burst into fragments, scattering them throughout space, (and remember, this is a true, scientific and natural possibility,) would the movements of the remaining nine primary and seven secondary planets be exactly as they are now? Sir John Herschel tells us, that "Saturn is subject to throes of such tremendous nature as to upheave whole zones of his surface five and six hundred miles above their ordinary level." The death of a star is not an impossible nor an improbable occurrence. Should a star disappear, as one did in 1572, at the time of Tycho, it would merely be, that one more star, having reached a certain state or condition, dissolution took place, or, as some express it, had gone out. Individual bodies as well as the whole Solar System are, as Mr. Spencer puts it:

"A moving equilibrium which is finally destined to be dissipated into the attenuated matter out of which it arose, and when Evolution has run its course, Dissolution will undo what Evolution has done."

Could any of these changes take place in nature, if she was held in the iron grasp of immutable law?

The fact is, Prof. Credo, that the seeming immutability of the laws of nature are simply a constant, invariable, uniformity. These laws or forces affect matter or events in exactly the same way under the same circumstances The changes which take place are so gradual, so infinitesimally slow, that mankind can not note them. *Natura non facit saltum.* Nature never leaps, is a canon in Natural history. She moves along by slow but sure steps. As she changes through the cycles of the ages, every atom in the whole universe partakes of this change. Throw a pebble in the ocean, and you stir every drop in its awful fullness. Shout in your anger, or whisper in the soft accents of love, and you stir all the atmosphere that surrounds our globe; and from the undulations of the ether, 'ere the response to your anger, or the much wished for answer to your pleading is uttered, your words will have reached the farthest star. So, from man's knowledge and experience at every period

of his existence, there would appear to him a seeming arbitrary movement of harmony, produced by immutable laws.

Let us give you a hypothetical case; one which, if you think a moment, is within possibility, however improbable it may appear. Remember, that while many of the writings and discoveries made by man in the past, have, through the ages, been preserved, yet history informs us, that many are forever lost. Prof. Jubal's historical fossils prove this.

Supposing all astronomical knowledge now on the earth to be lost, but by some means the telescopes and written works of our astronomers to be preserved. Let the ages roll along; let here and there a star go out; let Saturn, in one of his tremendous throes burst into fragments; let Venns drop, and Mercury steal into the Sun; let the telescopes and written works of our astronomers be discovered; let other Newton's, Kepler's, and Herschel's arise; and looking through these telescopes, and with, probably, an advanced knowledge of mathematics, compute the number of planets in our Solar System, then, by comparing them with the preserved records, what would they say?

"These past astronomers were mistaken. There are no such bodies. There are but eight primary planets. They speak of a planet which they call 'Saturn,' having seven moons. There is no such planet. The sun is not so large, and rotates in less time than they have set down. Neither does our earth revolve in her orbit round the sun at a rate of half a million miles a day, nor is she 95 million miles distant from the sun. Neither are the movements of the planets as they describe; they could not possibly have been as these astronomers have set them down. Their calculations were erroneous, and their mathematics incorrect."

Let us question one of these future astronomers. Why do you say, "Impossible for the planets and their movements to have been as described?"

"Because the *forces or laws of nature are immutable*, and must have affected the heavenly bodies as they do at this time. If nature's laws could change, how could we tell that Mars will eclipse the sun on the 21st of next month, at two and a half minutes past eight o'clock, A M., and will, at times, continue to eclipse it forever? These old astronomers tell us, that Mars

can not eclipse the sun; but their astronomy was very crude, being at their time in its infancy."

But let us ask: May not the orbit of Mars been outside that of the earth? And may there not have been other planets in existence at the time when these astronomers lived?

"No, this could not have been; no more than that there existed roving bodies in our system, which they called comets, having tails millions of miles in length."

These are the answers we should get, and so far as their knowledge extended, would be true; because, as we have said, all the changes which take place in nature are so infinitesimally slow, and each particle of matter, from an atom to a world, partaking of this change, it, as well as the laws, will appear to man in every age as immutable. These supposed future astronomers would make as exact calculations as we now do, and Cause and Effect would be as true and arbitrary as now. Still, Prof. Credo, we do not believe that Evolution can effect a change in our computation so as to make Mr. John Stuart Mill's two and two make five. This being an eternal truth, as much so, as that a cube cannot be a circle; and that all the diameters of a circle are equal, these are eternal truths. Should you abstract all intelligence capable of perceiving these truths, the cube will not cease to be a cube, nor the circle to have its diameters equal. The impossibility of their being *other* than what they *are*, would persist.

Prof Credo.—We suppose, Prof. Yag, that when every atom in the physical world has partaken of this universal change, that, then, when one of Mr. Darwin's monkeys becomes, say, one of these future astronomers, it will not be because he "leaped back to some ancient progenitor," nor forward into an astronomer; but, that by Evolution, he gradually changed; left off gathering cocoa-nuts, "drinking brandy and beer," and went to gratifying his proverbial curiosity by peeping into a telescope, and also, during his astronomical exercise, "wear," as Mr. Darwin says, "his tail off by friction."

Prof. Yag.—We admit, Prof. Credo, that this brandy and beer drinking by some monkeys is rather a weak effort on the part of Mr. Darwin in endeavoring to account for taste being similar in animals and men. And he did not succeed much

better when, after asserting that man once possessed a tail, he could find no more plausible way to account for its loss than by telling us, that "friction has had something to do with its disappearance, and is not so ridiculous as it at first appears." But we will dismiss Mr. Darwin, and while he is hunting for the "missing-link," we will examine a little further into our subject.

Let us examine into Mutability, and what shall we find? We shall find existing in nature, hidden under all forms, the finite, the momentary, the incidental, the conditioned, the mutable, disorder, and law, still, mundane events are not the effect nor the result of law; they are merely *affected* by their different laws. Prof. Draper says, what everybody else says, that—

"The origin, existence and death of nations depend upon physical influences [Yes.] which are themselves the result of immutable laws. [No.] The life of an individual, like that of nations, is transitional, governed and controlled by *immutable* laws."

We again say No. Throughout all the manifold actions of man; the changes of things and of events on this mutable earth, law *effects* nothing. Human affairs, being mutable, are in a constant and continuous movement. All systems of civil life are ephemeral and transient, subject to change, and at each change the law which *affects* them changes. If the existence and death of nations depended upon physical influences, and the lives of individuals were governed and controlled by immutable laws, there could be no change. A pre-fixed destiny would be man's fate; his volition and free-will absurdities. Free-will consists in the fact, that intelligent beings can choose. Were this not the case, man would be irresponsible for his acts; could do no wrong, and should not suffer punishment. Still, our more enlightened modern philosophers do not believe that the will of man is ever free. Mr. Spencer, in his "Pyschology," says:

"If physical changes conform to law, there cannot be any such thing as free-will. I will further say, that freedom of the will, did it exist, would be at variance with the beneficent necessity displayed in the evolution of the correspondence between the organism and the environment."

Now, Prof. Credo, let us close our argument. We say that law is nothing in itself; that it is born of disorder; that law, order, and disorder, are all separate and distinct states of being,

and cannot exist together. Let us demonstrate this by showing the origin and existence of law among mankind. Let us suppose there to exist but one man on the earth. There, then, would exist no law. The will of this man would be supreme. Law being a rule of action, formulated and prescribed by a supreme power, he, himself, would be the supreme power. He could, however, formulate no law, no rule of action. There would be nothing to prescribe; nothing upon which a rule could act; no "being or doing." And why not? Because Order reigns.

Let another man enter. Let there be any one thing which both desired but which only one possessed, *meum et tuum* would have being. The conflict of disorder would then be born; and the law of Might spring into existence. Thus, so far, order would die. So far, disorder would come into existence, and beget this first law, Might. Remember, this law was non-existent before and could not exist during the existence of order.

Let a third man enter. Clothe him with power; make him the supreme authority, and immediately he contemplates; formulates a rule of action; issues a decree, and the law *affecting* Mine and Thine exists. Now, this law did not create or *cause* the primal Right in Things, nor *effect* the natural right to take where we can find. This law was non-existent *before*. It exists *now;* and was born of disorder. Law never anticipates. It comes when occasion needs. Events are before the law, the law never before the event.

This state of affairs would be the commencement of a social state among mankind. It would be evolved from the new relations; and, afterwards, every new relation would bring into existence new laws—laws which were *impossible* to exist before This is how, and from where Mr. Spencer gets his non-existent and impossible laws. But you must not infer from this that they ever had a beginning, or you would be contradicting Mr. Spencer's premiss of a "No-beginning of anything." So, to reconcile the apparent contradiction, you must take these conclusions in a Spencerian sense.

Prof. Credo.—Well, Prof. Yag, you have given us a clear and logical argument as to the origin and essence of Law. We agree with you as to the mutability of nature and her laws, and

will think over the other points you have presented. But let us ask: How is it, Professor, that Mr. Spencer has not attempted to explain, nor taken any notice of the origin of life, except to say: "Life had no beginning?"

PROF. YAG.—Remember, Prof. Credo, we have already stated that it takes a great deal of deep metaphysical reasoning, and also of Mr. Spencer's kind, to enable one to grasp his thoughts. It would make an ordinary philosopher's head swim in trying to comprehend how Mr. Spencer can, without admitting Creation, so reason out and arrive at a correct logical conclusion, that a thing which had No-beginning can have a beginning; a sensible form when it comes into the perceptible, and will have a subsequent existence in a sensible form when it returns to its No-beginning condition in the imperceptible. Further, after affirming that "Universal Evolution is in itself the negation of the absolute commencement of anything," how Mr. Spencer could then have produced a "Synthetic Philosophy," with which he has been able to build up everything; account for the commencement of the world and everything in and on it, by simply employing Force, to carry out a mode of an imaginary Unknowable Reality.

While Mr. Spencer is a great admirer of Von Baer's philosophy, except as to what may be implied from the word "Thought," namely:

"It is the same thought which collected in the cosmic space, the divided masses into spheres and combined these into solar systems."

Neither does Mr. Spencer endorse, or at least he has not said he endorses, Von Baer, on his origin of life, when he says:

"It was the same *thought* which caused the weather-beaten dust on the surface of our metallic planet to spring forth into *living forms*."

PROF. CREDO.—All very well, but, whether he succeeded or not, at least, Von Baer attempted to account for the origin of life; but, Mr. Spencer shirks it.

PROF. YAG.—Oh, No! not shirks it! Mr. Spencer is too good a reasoner, too bold an asserter to shirk any conclusions to which his philosophy might lead. He has never yet failed to explain any phenomena where language was capable of converting a

mere re-statement of the facts into the semblance of a *vera causa*. He has merely taken it for granted that life had No-beginning. for the purpose of securing a firm foundation upon which to build his proofs of in what life consists and how maintained. Mr. Spencer is too prudent a philosopher to commit himself, like Huxley, to manufacturing, and, like Haeckel, to spontaneously generate the most wonderful of all phenomena, Life. Bold as he is, he has not dared to trace its origin to his Unknowable Reality. He is too logical a reasoner not to see, should he do so ; should he attempt to attribule its origin to a *primal cause*, he would be driven to accept that of an intelligent, First Cause. Chance being the antithesis of Evolution, and Evolution not being causation, he had but the alternatives. Intelligent Cause ; an Unknowable Reality and Blind Chance, so he boldly asserts, that Life had no origin, and says : "The absolute commencement of organic life, on the globe, I distinctly deny." Still, as life was too important a phenomenon to pass over entirely, Mr. Spencer was compelled to endeavor to show in what life consists, and how maintained. So, after demolishing the theories of Schelling, Richerand, DeBlainville, and Mr. G. H. Lewes, he tells us—we will quote his own words from his "Biology," wherein he says : "The broadest and and most complete definition of Life will be—*The continuous adjustment of internal relations to external relations.*"

In another place Mr. Spencer tells us, that :

"No inorganic matter can have its temperature altered, without at the same time undergoing an alteration in bulk. An inorganic body cannot be oxidized, without at the same time changing its weight, color, and atomic arrangements. The alteration wrought by some environing agency on an inanimate object, does not tend to induce in it a secondary alteration that anticipates some secondary alteration in the environment. But, in every *living* body there is a tendency towards secondary alterations of this nature, and it is in their production that the correspondence consists. The difference may be best expressed by symbols. Let A be a change in the environment, and B some resulting change in an inorganic mass. Then A having produced B, the action ceases. But if we take a *living* body of requisite organization, and let the change A impress on it, some change C ; then, while in the environment, A is occasioning $\underline{a}$, in the living body C, will be occasioning $\underline{a}$; of which $\underline{a}$ and $\underline{c}$ will show a certain concord in time, place, or intensity. And

while it is *in* the continuous production of such concord, or correspondence, that Life consists, it is *by* the continuous production of them that Life is maintained.

Although, according to the theory of Evolution, which is a genuine scientific theory, all phenomena, whose manifestations act upon our senses by which we perceive them, have been evolved. Still, as life had No-beginning, it required no evolution, because it *was*. Consequently, Mr. Spencer needed only to show in what life consists and how maintained. But, as Life can and does exist without intelligence, Mr. Spencer has shown us how this phenomenon has been evolved. Still, this had No-beginning either.

As we have already stated, if you will keep in your mind the Spencerian sense of the term "No-beginning," you will readily comprehend how the beginning of a No-beginning can commence to begin. It will take too long to describe the process; but, as every phenomenon in nature is affected by its own peculiar law, we will give you Mr. Spencer's law of intelligence. Which being, that:

"The strengths of the inner cohesions between psychical states must be proportionate to the persistences of the outer relations symbolized."

Thus the human mind having been evolved by these outer relations, it follows that the development of intelligence is, as Mr. Spencer says:

"Secured by the one simple principle, that experience of the outer relations *produces* inner cohesions, and makes the inner cohesions strong in proportion as the outer relations are persistent."

This must be clear to you Professor, for however obscure Mr. Spencer's philosophy may be, it has the merit of being plain, simple, clear, and easily understood. Apply the simplicity of the principles contained in Mr. Spencer's philosophy to the origin or evolution of a written language, which is but one of the many steps Evolution has taken towards evolving that higher degree of intelligence which man will attain. For, as Mr. Spencer says:

"Evolution can end only in the establishment of the greatest perfection in man's mental nature, and most complete happiness.

Apply them to this perfection of Evolution; to the time, "*When*," as Mr. Darwin says:

"*Man's intelligence and virtuous habits will grow stronger, and virtue will be triumphant*," and we are sure that you can see the force of Mr. Spencer's statements, and, if you take them for granted, you will not deny that a written language would be evolved, that is, if the conditions are such that the strengths of the inner cohesions A, become proportionate to the persistence of the outer relations B. For, then, their concords and correspondences must produce the psychical state C, which will result in evolving intelligence D, when, of course, after arranging the symbols, A, B, C, D, down to Z, in their order, as they occur in their alphabetical environment, their action ceases. Because, just so soon as the major premiss A becomes oxidized, the alteration in its bulk, weight, color, and alphabetical arrangement *must* so affect the minor term, as to produce through the environing agency, a resultant correspondence with the concluclusion C, and ultimately envolve D. Then, should a certain "concord in time, place, and intensity" exist, it will be *in* the continuous production of such like symbols that a written language will consist, but it will be *by* the continued arranging and rearranging of them that intelligence will be maintained. So, we are sure, Prof. Credo, you will not pretend to say, after having taken it for granted, that this is not clear, intelligible, and strictly philosophical.

PROF. CREDO—We are much pleased, Prof. Yag, with your clear and logical reasonings, but, at the latter end of your argument we failed to follow you, even by taking your reasonings and terms in a Spencerian sense. Neither do we think that Prof. Jubal quite grasped your meaning. For when you had oxidized the major premiss, we closed our eyes in order to keep out of sight all external relations which might affect our mind, and thus prevent us from concentrating all our efforts in following you. When we opened our eyes, we saw Jubal pretending to laugh at a fly cleaning his wings on our spectacles.

Whether or not Mr. Spencer's philosophy denies the immutability of nature and her laws, we again admit that you have made a strong argument as to their mutability. We will also admit, that it is difficult to dive down to the depths of Mr. Spencer's

thoughts or comprehend their consistency when he utters them, particularly after showing us how things commence, and then distinctly denying the absolute commencement of anything; but you say we must take this in a Spencerian sense. So, in the same sense, we suppose we must understand him when he says: "Force is the ultimate of ultimates. Force never came into existence, nor will ever cease to exist;" and then immediately informs us, that:

"Force, as we know it, can be regarded *only* as a certain conditioned *effect* of an unconditioned *cause*; as a relative reality, indicating to us an Absolute Reality by which it is immediatly *produced*."

So we say, Prof. Yag, that the abyss of Mr. Spencer's thoughts must indeed be deep, or rather, if you will allow us the expression, transcendently shallow, when he can get them down into a depth so profound as to discover an Ultimate of Ultimates, which, in and of itself, is *only* a certain *conditioned effect* of another Ultimate—an Absolute Reality; an *unconditioned cause* which immediately produces the first Ultimate of Ultimates as an *effect* of itself, the Ultimate *cause*. Taking this in a Spencerian sense, we can easily understand how Force, being an *effect*, must be the Ultimate of Ultimates. Still, if we could get down to the illimitable depths of Mr. Spencer's thoughts, how do we know but we may find, as we once told Prof. Jubal, an Ultimate of Ultimates, ultimately Ultimate, which may be the *unconditioned cause* of all other so-called Ultimates; and, if mutable, possessing the essence of change, can not only i self be changed, but can not impart immutability to anything else. Because, as one cannot do that which is beyond its nature, it, therefore, cannot give that which it has not to give. The essence of a thing is that which makes it what it is, and distinguishes it from all else. If this should be the final depth of Mr. Spencer's thoughts, then, of course, his philosophy is difficult to comprehend, except as to the mutability of nature and her laws. Still, notwithstanding all tbis, if this Final, Ultimate Cause of all mutable things be endowed with Omnipotence, then this part of Mr. Spencer's philosophy would not, so far, conflict with the Christion dogma of an Infinite, Intelligent, First, Final Cause, as the origin of mutable things, and mutable laws to affect them.

Thus An Almighty Being could, by the volition of His will, have created a mutable universe, and impressed upon it mutable forces or laws, which during its changing conditions—Evolution, if you choose—should affect all finite entities as they came from their created condition in potentiality into actuality at their proper time and season, and thus, as you have shown, that as law never anticipates the event, upon the event of the actuality occurring, then the law affecting the actuality, comes into existence. Thus it follows, that both the event and the law are mutable, they being in themselves nothing more nor less than changes or successions of changes in finite entities. It is the same in regard to what we call Time and Distance. These, being nothing in themselves, their existence depends upon changes in mutable things. If there existed nothing but necessary, and, consequently, immutable being, there could be no law, distance nor time, but immutable order—an ever present Now.

You must not, Prof. Yag, like Mr. Spencer, confound the forces in nature with laws, because force itself is subject to law. Material nature acts in obedience to forces, and forces act in obedience to laws. If Force was law, it would be a principle, intelligent, for law is an emanation from reason. The law of nature is the design of an agent realized in matter. The great English law writer, John Austin, says:

"The so-called laws of nature are not commands; they are uniformities which resemble commands only in so far as they may be supposed to have been ordered by some intelligent Being. But they are not commands in the proper sense of that word. They are not addressed to reasonable beings, who may or may not will obedeince to them. Laws of nature are not addressed to anybody. The so-called laws of nature are improperly so-called.

Paley says:

"Law pre-supposes an agent; this is only a mode by which an agent proceeds. It implies a power, for it is according to which this power acts. Without this agent; without this power; which are both distinct from itself, law does nothing; *is nothing.*"

As to law being the emanation from a reason; the volition of a will, Mr. Wallace, who is one of your modern Evolution philosophers, in his work on Natural Selection, says:

"The whole universe is not merely dependent on, but actually *is* the will of higher intelligences, or of one Supreme Intelligence."

The truest and best definition of what constitutes Law, is given us by St. Thomas, who says:

"The fundamental idea of law is, that it be in accordance with reason; that it be an emanation from reason, and the will in giving sanction to law, and carrying it into execution should be merely anxiliary to reason, its instrument, its arm. Law is a rule dictated by reason. Reason receives its motive power from the will, for while the will seeks the end, reason enjoins the means of attainment, but the will, to have the force of law, must be guided by reason. Law should not be the expression of will, but of reason, mere will does not constitute law. Just law is derived not exactly from human reason, but from the eternal law, it is not man's reason, but reason emanating from God, or more properly speaking, the reason of God, the eternal law."

Therefore, Prof. Yag, if these authorities are worth anything, Law has a reason. The unperverted mind can not believe it to be without a reason. Chance law, is no law. Law, then, being an emanation from reason, and its existence being subsequent to that of the agent by whose power it acts, cannot possess an essence which is not possessed by this agent; and, as this agent is not a Chance agent, it must possess intelligence, will, and volition; because volition does not answer to the idea of a power not possessed of will and intelligence. Thus, we find, that law in its ultimate, is an emanation from a Mind; the volition of a Will; a rule of action formulated by the reason of an intelligent power, be the personality of that power what it may; so by running back to the final origin of law, if Mr. Spencer imagines, or attempts to prove from the Nebular theory, that a self-existing one law—the law or force of gravitation, or any other physical power (we will still say law) has of itself determined the course of Cosmical Evolution, so that there is no need for the existence and the operation of a mind; that a contrivance needs no contriver; a design, no designer; he merely shows that he can reason very illogically.

Before going further, we desire to examine into the foundation upon which rests the structure of Mr. Spencer's "Synthetic Philosophy," viz. "The theory of the Self-existence of matter, and Universal Evolution." That the first is the foundation of his

philosophy, we learn from his "First Principles;" wherein, after disposing of other theories, he says:

"We have, therefore, to fall back on the Self existence theory, as the one commonly accepted, and commonly supposed to be satisfactory."

All philosophers who accept this theory, assert, that once the whole Universe (space) was filled up equally, full of a single unique or homogeneous mass of matter; that this matter has changed, and produced our visible universe. This change, according to Mr. Spencer, has been produced by a Universal Evolution. In defining Evolution, he says:

"Evolution is a change from an indefinite, incoherent, homogenity, to a definite, coherent, heterogenity, through continuous differentiations and integrations."

As this, Prof. Yag, may be difficult for these young gentlemen to comprehend, we had better give them Mr. Kirkham's translation of it into plain English:

"Evolution is a change from a nohowish, unthinkaboutable, all-alikeness, to a somehowish and in-genealtalkaboutable not all-alikeness, by continuous somethingelseifications and sticktogetherations."

Mr. Spencer further says:

"There is a constant conflict between the forces of which the action is integrating or consolidating, and those of which the action is disintegrating. This process is always tending to an equilibrium between the forces, and ultimately to a dissolution," * * * "As the process of Dissolution forms the complement of Evolution, it will undo what Evolution has done. Our Solar System after reaching its equilibrium by Evolution, will, by Dissolution, or, using a more correct term, Involution, be dissipated into the attenuated matter out of which it arose."

Now, if we understand this aright, let us see whether the doctrine embodied in this philosophy can stand the test of a philosophical analysis. Matter, by hypothesis, has no beginning or end in time. It passes from a unique, homogeneous to a heterogenous condition, and will go on increasing in number and variety, until they reach the highest possible point or equilibrium, both as to number and quality. *Then* it will be in the most perfect evolved state. *Then* it will begin to aggregate, and *evo*lution will be succeeded by *in*volution, until the number and variety has decreased to the one, unique, unvaried state; again

to evolve, etc., etc. And the cause of this process is immanent in matter thus transformed. This is the essence of the doctrine.

In the first place, let us see if one such unique entity can *be*. We affirm that it can not.

One entity, (being) only, can have no *where*, because to be somewhere it must be present to something. Presence to nothing is no presence at all. It can have no *when*, as there is no space for it to be. When there is no position, direction, length, height, depth, movement or distance, there is no space. One being alone can have neither position, direction, etc., etc.

Therefore, with only *two* beings there cannot be any *where*, for the same reason.

It is necessary to have *three* entities or beings to establish the foundation of relative presence (or extension) and space, which is the resultant of extension.

Our illustration will prove this. Suppose three entities (themselves unextended,) | B | A | C | The element A occupies the place just *where* the one other B, *ceases to be*, and just where a third C, *begins to be*, *i. e.*, the ubication which neither B nor C have.

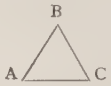
Now, if A were eliminated, then there would cease to be any *where* (any ubication) for B and C, and absolute contact would result. For, two such elements cannot be ubicated to the right or left of each other, nor above and below each other. Each, moreover, could be conceived of as being in every possible relation to one another, which is absurd.

It is not necessary to go on and account for the apparent contact of B and A and of A and C, for the relative presence of B and A is measured by C, and the same of A and C by B, a relation not of contact, but rather of direction and distance.

Therefore, First. Without a third body or element through which one body is related to a second, there can be no *direction*.

Second. The same for *distance*.

Third. Height is not conceivable without a third point of triangulation.



Fourth. Two bodies in motion could not have unequal velocities without a *third* as a relative constant.

Fifth. All weights would be equally balanced without the *third weight* of the fulcrum.

Thus, we can say, that even God could not create only *one*, or only *two* entities. With less than three there cannot be creation, just as we say, God could not make *two ends* without a *middle*. There cannot be *one surface*, or two opposite surfaces unless a *third medium* separates them.

We are endeavoring to prove that one single unique homogeneous mass of matter which is *a se* (of itself) can not pass into the necessary state, in order to produce the *three* relations, without which an entity cannot *be*. Keeping this first illustration in your mind, Prof. Yag, we will give you a second, derived from the idea of generation of individuals, whose resultant is the family.

Let us suppose a diagram.

Father.	Child.	Mother.
F.	C.	M.

The relation of *Paternity* includes necessarily the other two of *Maternity* and *Filiation*.

Maternity also includes necessarily the relations of Paternity and Filiation, and *Filiation* those of Paternity and Maternity. The relation of the Father F, to the child C, is *through* the Mother M, (as in our former example the relation of *B* to *A*

B	A	C

was *through C)* and the relation of the Mother M to the Child C, is *through* the Father F. So, also, the relations of the child C to the Father F and the Mother C are evident.

Now, suppose the term Child, to be eliminated. Evidently, there is neither Father nor Mother; neither Paternity nor Maternity. So, conclude also, for elimination of either the others. Defining the terms *father*, *mother*, *child*, as *vital individuals*, it is plain that one or two only, never could have *vital extension*, *i. e.*, relative generation, nor could there be an analogous *vital space*, the resultant of relative generation (as material space is resultant of relative presence) or, as we say, the family.

One element of the term *family* cannot be alone, for it cannot generate itself. Two elements cannot constitute the family, for then they would generate each other.

Therefore, Elements must have *relative presence*, or there can be neither extension nor space. Also, by analogy, the vital individuals must have *relative vitality*, or there can be neither generation nor family. *A man, a woman, a child, not related by vitality, do not make a family.*

Further. That which has modificability, as asserted by Mr. Spencer, cannot reduce itself to a state in which it is totally without relation of parts in itself, for it is, by hypothesis, without parts; without relation to ought else; for it is *all* that is. A thing that is unique, without relation, can not have a *where*, nor is there a *when* of it, because there can not be a *when* of anything unless there is a *how it is*, relative to a *how it was* or *how it is not*, or a relation of identity. Being *no* where and in *no* state, is the same thing as to say *it is not*. The supposed existence of a unique homogenous chaos, is therefore impossible, and only imaginary; it is a state of negation, or annihilation, from which there is no passage to real being, except by Creation.

The objection may be urged, "that in this imaginary unique immensity; (we say *immensity*, but as it is *all* there is, and it is one, homogeneous mass, it might just as well be denominated *microscopically small* as *immense*, for it is not measurable, being devoid of relation,) there is a virtuality of relation, virtual parts, and virtual power of evolution." But, if it be, as claimed, totally unique, it can have but one virtuality. One virtuality alone cannot be real any more than one existence alone. In order that a virtuality should be extrinsically terminated, there must be a subject, medium and object. By hypothesis, there is no medium, subject or object to be even conceived of. There is a virtual power of reflection in a mirror, but a mirror cannot reflect itself.

Some Thoughts on Creation.

In the remarks which we have heretofore made before these young gentlemen, we have not, directly, defended the theory of Creation. We will now present some points to them and to you, Prof. Yag, as a logician and philosopher, to ponder over, that you may see if, as your friend Mr. Spencer says: "Creation is an unthinkable, impossible idea."

When we affirm, "Finite Matter now *is*," we include the affirmation, "It once *was not*." If we are asked to cut a line in half which has no end either way, plainly, we cannot do it. There is not even a possible middle to such an imaginary, unreal undefined line. But, if we can point to a division of a line and say: "This *is* the middle," evidently we affirm also both ends beyond which, at either end, the line ceases and *is not*.

If we are not able to divide (so to speak,) the existence of a finite being into definite parts, evidently, it is only an imaginary existence, and not a real one. An existence must, therefore, be possible of definition, *i. e.*, its terms must be possible of affirmation, or it is only an imaginary existence. But, to affirm the definite terminations of an existence is to affirm its boundary or beginning in time from which it is, and before which it is not; also, its limit in space, within which *it is*, and without or beyond which it *is not*.

PROF. YAG—The argument you have adduced, Prof. Credo, is begging the question—the affirmation of a definite beginning of matter. This we deny. The beginning of matter cannot be affirmed, neither its ending, nor its middle. As for example. Conceive of a line with neither beginning, middle or end. But here and there you can affirm, that it is crooked for a portion; here end there it is straight, *i. e.*, you can affirm individuals, modification of matter, evolved states as modified, and yet not be able to affirm that the line begins anywhere, or did begin, or will end at any time.

PROF. CREDO—The speciousness of this objection lies in supposing that a line *can* be conceived of, which is without measure. This is impossible to reason.

Secondly. The affirmation of so-called individuals, or evolved modifications here and there of the line, is, in fact, to *give it an end*, now and here distinctly terminated, from which to count backwards; for the supposed *future* line *is not*, and such a complete imaginary line both ways could not be divided at any point, neither could any point be individualized in it.

Thirdly. If now we subtract the definitely terminated portions from the end of the line we have in hand, we either lessen the real length or we do not. If we lessen its length, it has a definite length. If a definite length, it has a definite *beginning*.

If we do not lessen the line by substracting these real portions, then the line is not real, but only imaginary, projected by our imagination into space and time, as much more on the other end as we cut off from it at this end; a contradiction in the imagination, as by supposition, it has no other end.

Creation Necessary.

Let us apply these reasonings to a unique or homogeneous mass of matter, which, by hypothesis, had no beginning in time, and see if it could give itself, or acquire the quality of modificability, for, without this, it would remain in its unique condition eternally.

Modificability is essential to existences as substances. Modificability is the quality of indifference to being or not being in such or such a mode, *i. e.*, it is essentially receptive of any possible mode. Now, if existence give itself modificability, *i. e.*, if modificability is *a se*, (of itself,) it would follow that it possesses the quality to be indifferent whether it be *modifiable* or not, which, by the definition, is denied—modificability being asserted as essential to reality; *Ergo*, the reason of modification of an existence is necessarily *ab extra, ab alio*, and the ultimate reason of its modificability must be referred to creative act.

The metaphysical essence of a triangle, v. g., are three lines and three angles, and this can not be conceived of as existing apart from a *real* triangle, which must exist in some mode, (must be *asserted* as existing in some mode,) with definite lines and definite angles, and be essentially a modifiable thing, (offering increase or diminuation of its lines or angles,) or it never could have any definite or real existing mode, either of lines or of angles.

Until it existed as a real triangle (of such angles and such lines,) a modifiable thing, it could not have modificability. *Ergo:* the cause of its modificability, the cause of its substance as a *triangulum modificatum* is not *a se*, but *ab alio*. *Ergo*, cause, created.

The application to created existence is evident. What is *a se* (of itself,) can have no potentiality. For, it cannot be other than it is, cannot be mutable.

Matter is mutable, has potentiality, therefore is not *a se*, but *ab alio*, (from another,) therefore from or created by Being, which is *a se* absolute *ab solo*, God. There is the potentiality of an existence *before* it is. In what does the potentiality reside? Not in itself, because it *is not*. Therefore, it cannot reduce its potentiality to act. The potentiality of matter is, therefore, in a cause, a determining cause, a cause which decides upon the choice among possible potentialities, and reduces the one rather than the others to act.

Plato was a potential existence in the Cause. That he is, and is as he is, and not more or less, evidences that the effect, Plato, is the result of choice among possible Platos, therefore, an intelligent Cause (a cause that wills the effect in such and such a determination,) caused, created him.

From this reasoning, Prof. Yag, and you young gentlemen, if you have followed us, we would define Creation to be the affirmation of a potential existence in the Divine mind of the Creator. Before light was, its potentiality was in the Divine Mind. The *affirming* it *to be*, was its choice and its calling into existence; its reduction to act; its Creation. *Fiat lux!* And God *said*: Let there *be* light. And light was.

All the Mosaic account of Creation, refers the acts of creation to God's *saying* or *affirming*.

St. John describes the *word* of God, by whom all things were made that was made.

God affirmed matter. That was its Creation. He affirmed it in such or such a mode, subject to such or such an evolution, modifications, dependent upon its final cause which was the ratio or *reason why* He affirmed its potentiality rather than other potentialities.

God affirmed, created matter *ex nihilo*, from nothing—from *posse* to *esse*. That is, a potentiality, is *no thing*, until reduced to act.

God did not create from nothing, in the sense of making 1 from 0 (one from zero.)

God could not, of course, make two Contradictories, as one and zero. Could not make the infidel's *line with one end only*, or a line without an end. Cannot make a triangle with only two lines or two angles, etc., etc.

In some sense, we create a triangle from nothing when we affirm a triangle of definite lines and angles.

As the geometrician reasons, He begins his proof of a proposition in Euclid, by saying: *Let* A B C be a right angle.

His affirmation of the angle A B C creates a given right angle. If he now says: "*Let the line* B C *be* double the length of the line A B, and you join A C by a straight line." He has now affirmed the existence of a *real* triangle, having definite qualities, relations, angles, etc. If he says: Let A B be one inch, and B C two inches, he materializes it.

Apply this to what we have already said of God's affirming, creating existencies, and we think, Prof. Yag, that creation is not an unthinkable, impossible idea.

Even granting the hypothesis, that matter once existed in a unique or homogeneous condition, if our reasonings be correct, then, as we once said to Prof. Jubal, that without an external agency to cause change, this matter would remain homogeneous for ever.

We would like, therefore, to dive deep enough down into Mr. Spencer's thoughts and learn, how homogeneous (all alikeness) atoms of matter can of themselves change and become heterogeneous (all unlikeness). And, after learning this, as there is No-beginning of anything, we should want to dive still deeper and learn, about what No-beginning time they *began* to be something else; and keep diving until we learned when these atoms of matter, after reaching their equilibrium by Evolution, *began* to change, and, by Involution, were dissipated into their original homogeneousness [like themselves] and *began* again to become hertrogeneous [unlike themselves] continuing the process for ever and ever, amen, until the history of the whole transaction, up to the present time, had been recorded and published in Mr. Spencer's "Synthetic Philosophy."

For the purpose of the argument, we are willing to suppose the Nebular theory to be true. But, Prof. Yag, you must not overlook the fact, that the origin of the nebular presents itself to

the reason as a problem which demands solution, no less than the origin of the planets. All the properties and laws of the nebula, require to be accounted for. What origin are we to give them? It must be either reason or unreason. We may go back as far as we please, but at every step and stage of the regress, we shall find ourselves confronted with the same question, the same alternative—intelligent purpose or blind chance.

A wonderful thing is intelligence. Intelligence is essentially active; it is activity. With it there is relation, order, rule, science, art; without intelligence there is nothing. Picture to yourself, if you can, a condition of nature when intelligence did not exist. Conceive, if you can, the world without the pre-existence of intelligence; all is chaos. Observe the order which now exists; destroy intelligence, and the universe is a beautiful picture placed before the extinguished sight of a corpse. With intelligence we can form some idea of an absolute, infinite Being, and conceive of an infinitely perfect will. We can conceive, and it is not repugnant to reason, creation as a pure act of will, calling into existence from nothing, the types which pre-existed from all eternity in the mind of an infinite intelligence. With the intelligence which we possess, and which lifts itself to the thought that it is an emanation from an infinite intelligence, there is a focus of light; without it, an abyss of darkness; and we know not whether we are immerged in an infinite reality, or lost in the imaginary space of a vague and empty conception.

As we once said to Prof. Jubal, that upon the basis of an intelligent Unknowable, a First, Final. Intelligent Cause, the Nebular theory, Evolution in all its phases, in fact, much of Mr. Spencer's philosophy would be reasonable, and not necessarily in conflict with what the Christian Philosophy phers, the Fathers and Doctors of the Christian Church, have held and taught over 1,500 years ago. The faith of the Christian Philosopher does not require him to believe in any particular *mode* or details of the creation of the universe; but whatever the mode, it was God's mode; also, to believe in the dogma, that an Almighty ruler, an intelligent power, did create the universe; decree laws for its government, and has revealed His will to man. Evolution, in its true sense, as a part of the mode

of creation, is not repugnant to Christian faith. It was taught by St. Augustine, who says:

"For, in the very beginning of creation there were certain entities specifically distinguished in their proper natures. For, in those first days God created the creature in its origin or *cause.*"

St. Thomas says:

"Thus was completed the Mosaic six days. All the rest was the result of a *gradual evolution*; that is to say, of an evolution effected by the creator according to the laws imposed by Himself *on* nature, through the operation of natural *causes.* In those days all organisms were created, not actually, but potentially and specifically distinguished in their proper natures, as the elements and celestial bodies, to be subsequently evolved into actual existences at due time and season, when the conditions originally intended and decreed should arise. For thus taught Moses: "*Let the Earth bring forth the living thing.*"

This is why St. Thomas says: "Plato might never have been born. He could be, because the possible was in primordial matter."

Let us compare this sense of Evolution with that of Messrs. Spencer and Darwin, the basis of whose Evolution is, that all the different organic forms and their essences which now exist on the earth, were evolved from some other entirely different forms. For instance, to go no further back, reptile, bird, mammal and man existed potentially in the primitive fish, and, by evolution, this primitive fish became the primitive man, etc., etc.

But those old Christian Doctors and Philosophers, taught that God created each and every organism potentially and specifically distinguished them in their *proper natures*, which should come into actuality at their proper time and season; still, when they did come into actual existence, they could be *no other* than what they were when created potentially. You know, Prof. Yag, that contingent being. is being, either existing, or is possible to exist without *absolute necessity* of existing.

Let us take Plato. His actual existence was not an *absolute necessity.* His actual existence was possible. He became an actual, visible, existing being. But he was *not* at the time of Homer. *Then* he was merely possible. *Then* he could be, or, he could not be; and when he came into actuality he must be

what he was when created potentially. But, you may say, "Plato might have been an ape or an antelope." Not so, for then he would not have been Plato, but something else. "But he might never have been born." True, but if Plato is to be born, he must be as Plato or not at all. He must be a rational animal, *that* cannot change. "Why not?" Because, Plato is a man, and a man must be a rational animal. You must not forget that that which is impossible can never become possible. Even an Almighty Being canuot do an impossible thing or that which implies a contradiction; cannot make a circle to be a square, or Plato a bird, reptile or a fish. A thing must be what, it *is*; to be other than itself, involves a contradiction.

Granting what you philosophers say, that the universe was once filled up equally full of a primordial mass of matter which passed through states of gas, vapor, fiery-fluid, nebular, or any other condition, then, your Evolution produced Plato from this, and which, of itself, produced the vital-spark, Life. Also, the more astounding wonder, that from this gaseous vapor, this fiery-fluid, there has been evolved, that more wonderful phenomenon, Mind. Why, when you tell us this, and we bury ourselves in thought, our reason reels; we totter in our effort to think, and fall into the abyss of believing Nothing. What would you think of a mind so constituted as to be able to conceive or imagine an indignant triangle, or a crying demijohn filled with a square foot of ecstacy? We would rather be a Pantheist, and believe that everything was God, and we but manifestations of him—mere forms in which he at each successive moment exists.

Nonsense! Prof. Yag, your philosophy will drive you on, and down until you reach the depth of Skepticus. You will philosophize yourselves into Nonentities. See to where it is now drifting you upon a Materialistic ocean; upon a Idealistic sea, and tossing you upon the heaving waves of blind chance. To get a foundation for your sense of Evolution, you endow it with the power of Omnipotence in producing, but with the impotence of inanition in preserving. You *evolve* order out of chaos, and *involve*, with your Dissolution theory, chaos out of order. With your Evolution, you make nature the fruitful mother of Being, Life, Mind, Order and Law, while at the same time, you make

her a Hag, from whose parturient womb their comes forth a progeny to shortly live, suffer, curse, die, and sink into, what? Answer the question for yourself. With an exquisite satire on the logic of your own premises, you find this Hag, nature, with a no-beginning, and you make her the fruitful mother of all beginnings. You first find her as attenuated matter, and you end her in attenuated matter. But your persistent force will give her no rest. She is fated to again become pregnant with another future. Again to pass through alternate eras of Evolutions and Dissolutions. And all this done by that which consists of Matter, Force and Motion, which are themselves but different manifestations of Force, which, itself, is *only a mode* of a blind, unintelligent "Unknowable Reality." And, notwithstanding all this, Mr. Spencer says:

"There should be no antagonism between Science and Religion. The Materialist and Spiritualist controversy is a mere war of words, in which the disputants are equally absurd."

Now, in this connection, what does Mr. Spencer mean by "Science?" It must be his philosophy, resting as it does on force. "The persistence of force," he says, constitutes "the ultimate basis of all science."

Ah! Professor, your philosophy from age to age, is ever varying like a restless sea of changing doubt, and like a wrecked bark, you are drifting upon its bosom. You have cast overboard the sheet-anchor of man's heritage—that he shall live again. You have extinguished the beacon light of Faith which would guide you to that shore where dwells the author of your being. You are endeavoring to strangle in the human mind, the grand conception of, as we have said, "that tremendous Origin of Things—the Mind of God." Never in the history of man has so terrific a calamity befallen the human race as that Atheistic outpouring which we now behold advancing as a deluge; black with destruction, and seemingly resistless as Might; but the angel of God is standing on the hill-tops, pointing to the barrier of eternal truth, and with the voice of the ages proclaiming: "Hitherto shalt thou come, but no further; here shall thy proud waves be staid!"

You may go on and mount upon your glittering wings of self-sufficiency; but, like, as with Icarus, who flew too near the ma-

terial sun, the sun of eternal truth will melt the wax of your presumption, and, like he, you will fall into a sea; but yours will be into a sea of absolute skepticism.

You may sail your bold barks upon the ocean of moral and physical nature, endeavoring to discover that hidden shore; the mighty origin of being, truth and justice, but without the compass of the Word, as spoken on the hill of Sinai, you will drift over its infinite expanse until engulphed within its bosom. You may tread the paths of science, and seize her torch to light you in your groping; but, without that brighter living-light, the light of Faith revealed, to guide you, your torch of Materialism will lead you to the brink of an abyss, where it will be extinguished in your hands.

Abounding in systems, in order to maintain them, you are in exhaustible in subtilities. You give to sophistry a seductive appearance, a deceptive form, and dazzling show, in order to cover your vagaries. As ready to conceive new theories as incapable of maintaining them; as able and willing to destroy those of others as you are impotent to construct durable one of your own, and, deceived by your pride, in your imaginations, you fancy you explain a fact when you only obscure it, and prove a thing when you only assent it. You imagine you are analyzing nature when you take her to pieces; and when finding, as you think, a glittering speck, you imagine you have discovered a sun, with which you immediately commence to enlighten the world. You resemble those brilliant meteors which dart at random through the immensity of the heavens; assume a thousand eccentric forms; send forth a thousand sparks; dazzle for a moment by their fantastic splendor, and disappear without leaving even a reflected light to illuminate the darkness.

You found new schools of Philosophy. The ages roll along; ideas change; your school dies a natural death; a new analysis of nature has been made; a new sun discovered, and with its rays, the new schools scorch, burn, and destroy the older ones, in order to establish their own upon the ruins; each one in its turn, assuming the mission of banishing, what you term, religious fanaticism from the earth. With all the vigor of your eloquence, you thunder against the monster. You tire mankind with your

new philosophical systems. You have a mania for types. You form in your minds a type of the nature of man, society; aye! of everything; and that which is not adjusted to this type; everything that is not molded to the required form, is subjected to the fury of you philosophers.

A few men may give themselves up to fanaticism in religion, or to the folly of complete irreligion, but the human race always protests against those who endeavor to stifle the sentiment of religion.

Now, Prof. Jubal, we will turn Prof. Yag over to you, and shall be pleased to listen while you prove to him, from the premiss of the Self-existence of the Universe, that in nature there is no such thing as Impossibility.

PROF. JUBAL—No, Prof. Credo, we shall consume the balance of the day in giving our astronomical discoveries to our class, but, if Prof. Yag would be pleased to attend our lecture on Tuesday, then, among other subjects, we flatter ourselves that we shall prove conclusively, if not in a Spencerian, in a Jubalian sense, that nature *can* oxidize the major premiss A; can so arrange its atomic combinations, alter it in bulk, change its internal relations, and so cohere its psychical states as to cause them to become proportionate to the persistencies of its outer relations symbolized. Not in A B C, but in S O T; not in a crying demijohn, but in a laughing decanter filled with an empty yard of ecstatic imbecility, whose hilarity is misery, and whose normal condition is inebriety.

END OF LECTURE THREE.

LECTURE IV.

PROF. JUBAL RELATES HIS ASTRONOMICL DISCOVERIES TO HIS CLASS.

Young gentlemen. From the close attention which we observed you paid to the remarks of Professors Yag and Credo, we have no doubt you were interested, and hope, instructed. In defending the philosophy of his friend, Mr. Spencer, we thought, at times, that Prof. Yag was slightly satirical, particularly when endeavoring to show how a No-beginning thing could begin, as Mr. Spencer's philosophy is based on the premiss of "Self-existence," which he says:

"Means an existence independent of any other, and necessarily excludes the idea of a beginning—for to admit that there was a time when existence had not commenced, is to admit that its commencement was determined by something, or was caused —self-existence, therefore, necessarily means existence *without a beginning*."

And as his Synthetic Philosophy is devoted to accounting for beginnings, and the building-up of all phenomena which act on our senses, we think that Prof. Yag was not in earnest when he said, that Mr. Spencer, in order to get a beginning from a No-beginning, was compelled to make an ideal formula, and reason from a new logical and metaphysical foundation; also, that his synthetic judgments must be taken in a Spencerian sense.

As to the remarks of Prof. Credo, while he agrees with Prof. Yag as to the laws of nature being mutable, also with Mr. Spencer, in so far, that the wondrous system of harmony displayed in the visible universe, must be attriduted to a *mode*, and are but the forms under which the workings of an Unknowable Reality are cognizable by us. Still, he insists, and always will, that this Unknowable Reality is an intelligent Reality, and these forms, which constitute the visible universe, the world, and everything in and on it, existed eternally in the mind, and was created by the Fiat of the Origin of all things—God.

These differences of opinion between these philosophers go to prove what we stated at the commencement of our lectures, that no two philosophers ever yet agreed, and we doubt if they ever will, until they read what we shall deliver to you—Our own Theory for the Origin of the World and Species.

Our fifth lecture, gentlemen, will be upon "No impossibility in Nature," but we shall consume the remainder of our time to-day in giving you

Our Astronomical Discoveries.

On one occasion, when taking an observation of the heavens, endeavoring to discover the "Lost Pleiads," Truth-us and Justice-us, we observed passing across the field of our glass, an immense Nebula. Being doubtful of what it might portend, we watched it with great anxiety, not unmixed with fear. We knew that should it pass into our solar system, our destruction would be inevitable. But when we observed that it began to concentrate upon itself, we then knew would take place, what Mr. Spencer says must take place, that:

"A mutual gravitation would approximate its atoms; that such approximation would be opposed by atomic repulsion, the overcoming of which would evolve heat, thus giving rise to new and novel relations, and bring into existence new laws."

So, we glued our eye to our glass, and sat as one deprived of motion, while our heart beat in tumultious agitation. We looked into the depths of space. and saw, in our imagination, something coming with the rush and power of an intangible, celestial giant, from the region of the Unknowable, and enter into this nebulous mass. We soon knew that this monster was Force, because we saw Motion leap into life, and the nebula began to segregate and aggregate. Its molecules, possessing like affinities, rushed together with the velocity of corpuscles, and in an unknown period of time, great suns, moons and planets, like gigantic drops of burning metal, hung in space. The manifestations of Force, taking the form of Refrigeration, many of these bodies lost their heat and light.

So rapid was the evolution from the first impulse given by Force to this nebulous mass, that 'ere we could enumerate the planetary bodies, a new Solar System was evolved, and, while these bodies were glowing in their fervant heat, dripping floods of

light and shrinking by condensation and refrigeration, we named each body as it passed across the field of our glass. We thought we had named them all, when we discovered another body, which, from its insignificence, had escaped our observation; from which circumstance, we named this new body, the New World, AMERICUS.

From some peculiar actions of this new world, Americus, we became greatly interested and directed our whole attention to it; when we observed, attracted toward the northern part of it, divers small bodies, composed of foreign born molecules of "life-matter" and "mind-stuff." These small bodies we named the POPULI. After these populi bodies had become settled, fixed and attached to that part of Americus, we observed that they began segregating and aggregating, thus forming thirteen planets, which revolved within that part of Americus. We named these thirteen planets, the Constellation of Colonial Americus.

We also observed that this constellation was controlled by a distant sun, which we named Britannicus. This sun was governed by a powerful Rex star, known as George-us Third-us, whose changing laws so affected the populi on these thirteen colonial planets, as to cause among them great perturbation, determining the populi to a common centre of aggregation. We further observed that the force of intelligence existing and acting within these populi bodies composing this aggregation, so heated them as to generate a self-ruling principle, which took the form of a DECLARATION. The essence of this principle so increased the heat as to bring about the phenomena of Resistence and Repulsion. This perturbation in the thirteen colonial planets we named the Revolution American-us. This phenomenon of revolution we observed, was opposed by the atomic forces of Britannicus, the overcoming of which, by the thirteen planets, implied LIBERTY and INDEPENDENCE.

Upon the cooling of the heat generated during the resistance and repulsion of Britannicus, there was brought about a phenomenon of another order. The 13 planets suddenly entered into political union, and thus, by the *Vox* of the populi, was formed one great sun, "*E pluribus unum*," which we named the Federal Solar System.

At different periods, we observed many other planets enter into this Federal System, which we named the planets, State-us. These planets are of different magnitudes, but in their fundamental essences are equal and independent.

As they revolve in their several orbits, they are controlled in some of their movements by a Federal orb which governs the system. The planets, State-us, are more directly controlled by their moons, formed out of one of their populi. We have named these moons, Governor-us.

The force necessary to revolve this Federal System, is produced by the accumulation and expenditure of the rays of Official heat, which is generated in the system. This expenditure of official heat brought about a phenomenon of another order, which caused a cohesive aggregation of some of the populi matter, thus forming innumerable Satellites, which occupy different positions in the system, and which revolve in a Cringing orbit. These Satellites are of different forms and sizes, from a Chair in a Cabinet, to a Post in a Letter-box.

At every 4 years revolution of this Federal System, the most powerful planet in it, is formed out of some one of the populi by the aggregation of the *Vox* of the whole populi. This planet we have named President-us, because it possesses the power of placing the Federal Satellites in their proper positions in their orbits. These positions we have named Federal Officer-us; for the reason that they play an important part in the Federal System, causing great perturbation among the populi by endeavoring to control them in their electoral action. This action takes place every 4 years, when the populi of all the planets, State-us, aggregate around the poles of each planet, and the *Vox* of the largest aggregation forms the planet, President-us. There is a planetary body in this system which we have named Electoral College-us, and the *vox* of these populi aggregations are concentrated in this planet, where it is counted.

At the close of one of these 4 year revolutions of the planet, President-us, upon counting the *vox* of the populi aggregations in the Electoral College-us, a non-existent and hitherto supposed impossible law came into existence, the effect of which caused great perturbation throughout the whole Federal System, as this new-born law produced a new Star, named Election

Commission-us. The quality of the materials used in forming this Star were of such a character that it became a "Fixed" Star, and when it reached its zenith, it occupied such a position in its orbit, as to be in conjunction with the planet, Swindle-us, which fully controlled it. From some undeveloped cause, this conjunction caused an eclipse of the planet, Electoral College-us, which so obscured the numbers on the face of the *vox* of the populi aggregations returned to this planet, that when this *vox* passed from the Electoral College-us into the "Fixed" Star, Election Commissioner-us, the transit caused a 7 to look like an 8. The reversal of these numbers, caused by this obscuration, is recorded in the Historical Annals of the Federal System, as the "8 to 7 Swindle."

At the time this conjunction, transit, and reversal of these numbers took place, it gave such a shock to the whole Federal System, which, had it occurred prior to a little unpleasantness which existed between some of the State-us planets, and which grew out of a slight difference of opinion as to the equality of color, would have rendered it; destroyed its harmony, and dissipated it into the attenuated political matter out of which it arose, had it not been, that among the populi in the planets State-us, there existed an element, or as Mr. Spencer terms it, a "law of intelligence, which caused the strengths of their inner cohesions to be proportionate to their outer relations, symbolized" in the form of a future, thus enabling them to overcome the perturbation, and hurl the "Fixed" Star, Election Commission-us, into the abyss of infamy.

We discovered that one body, the newest, largest and most magnificient one among the planets, State-us, revolved in its orbit at one extreme end of the Federal System. When it first entered the System, it shone with such brilliant lustre, that the imaginations of the populi on the other planets, State-us, pictured it as being formed of precious metal.

We observed, that when the "'49" populi Jasons in their Argoses first entered this planet, they did so by sailing through a golden gate, while many other "'49" populi reached it by crossing a wide expanse which lay between it and the other planets, State-us. These populi, soon after reaching this planet, dug and delved; and, beneath the summits of its Sierra's, found

the Golden Fleece which buys the souls of men. From this fact, it is sometimes called the "Golden State," but with pride, we have named it California-us.

This planet makes its political revolution in its orbit every 4 years. Yet, it has within it, a bi-ennial political movement, the affect of which is to bring into existence a number of small, but dangerous bodies, which, having "Cinching" tails, can be seen gravitating, and aggregating on his planet in one spot, called Capitol-us.

This aggregation of these dangerous bodies we have named, Legislature-us. The materials of which they are composed, like the slaves of old, are saleable, but unlike these, when bought, they sell themselves.

These dangerous bodies remain in this spot during 60 dirunal rotations of the planet, California-us, during which time the populi upon it are in great consternation. Terror seizes upon them, and they are powerless from very dread; for these financial, death-dealing bodies, composing the Legislature-us, with their "Cincing" tails, like the Dog-star of the ancients, do so scourge and afflict the populi with divers calamities, that, in their misery, they call upon the gods of their pockets, to save them from their persecutors.

These Legislature-us bodies at the expiration of 60 dirunal rotation of California-us, disperse throughout this planet with their tails laden with "Cinch" matter. Thus, upon the 61st morning, when the sun of peace rises in his glory, the populi, like the ancient Aztecs, welcome him in shouts of joy and gladness, joining in one hymn of thanksgiving to the ruler of their planet for another two years lease of Financial life.

There are also within this State-us system, other systems, one of which we have named the Frisco Municipal System. This system was first discovered by an "Act of Consolidation," performed by one Hawes Horace, a celebrated Legislature-us astronomer. There is contained in this Frisco Municipal System, numerous other bodies of various magnitudes, all of which revolve in their several orbits around a central sun, known as the Municipal Populi, which sun is the source of their existence. These bodies are formed of detached portions of the populi,

and, during their existence, they revolve independently of the central sun.

The two largest of these bodies are of the 12th magnitude; each body being composed of 12 individual bodies, yet, in their aggregated motions, they affect the populi as one body. One of these two largest bodies, we have named the planet, Supervisor-us, the other, Educate-us. Planets composed of a lesser number of individual bodies, we have named Commissioner-us. All these bodies, when subjected to a just and honest spectrum analysis, present different colors, but, by combining all the colors, the tint "See-me," predominates.

One of these Commissioner-us planets presents a Fiery aspect; another a Sanitary hue; another a City Hall erecting complexion; another, through a powerful glass, looks like a ballot-box. This planet ballot-box, so moves away in its orbit as to become invisible to the populi for two years at a time. When it reappears it remains visible but one day, often changing the color of its complexion during that time, which is owing to the eccenticity of its ruling orb, the *vox populi.*

Another of these planets presents a pallid or lunar hue, so we named it Insane-us. This planet is of the fifth magnitude, and is opaque, shining only by its own reflective light. Yet, when the rays of its five individual reflections fall upon any individual populi whose eccentricities cause perturbance and hallucination within its body as it moves in its orbit, these reflective rays so burn and blast such populi body as to compel it to gravitate within the orbit of "Napa," but should this orbit be overcrowded with such eccentric bodies, they then fly off at a tangent and fall into the orbit of "Stockton."

The planet, Supervisor-us, is a body possessing more power than any other in the system. It resembles our sun; a sun of expenditure; expending rays of official heat. It therefore is a life-giving planet, without whose financial rays none of the other bodies in the system could move; they would be dead planets, hanging motionless in the Municipal sky. This planet moves in its orbit whenever, however, and does whatever it pleases. It rotates on its axis in two years, during which time the twelve individual bodies composing this planet, do so grind their own axes as to cause great perturbation and indignation among the

populi. There is a single individual planetary body in conjunction with Supervisor-us, which, during the evolutions, revolutions and resoutions of the main body, has, sometimes, a controlling influence. This individual body we have named Mayor-us. It is somewhat detached from the main body, but possesses great power when the main body is not in a two-third conjunction.

In this Municipal System, there has been evolved two elements—Gas and Water. Having no moon, during its nocturnal revolutions, like a nebula of rush-light stars, it is supposed to be brilliantly illumined by the gas element. The quantity and quality of this element, as well as the rise and fall of the water-tide,, are controlled and regulated each annual revolution of the system, by the planet, Supervisor-us, which regulation, we have called Fixing the Rates. These rates are what the populi, who consume these elements, have to expend, and their maximum depends entirely upon the number of bodies known as Golden-hued disks, which may gravitate and fall into holes or side excavations of two-thirds of the twelve individual bodies comprising this planet.

It was found, at one time, in this Municipal System, that an additional supply of the gas element had been evolved, causing a reduction of the metallic expenditure by the populi for its consumption, but, from a common and well-known quality in the essence of all such gases, these two suddenly entered into gaseous union, thus raising the metallic expenditure of the populi. After the mingling of these two gases, they underwent an Aldermanic analysis by the planet, Supervisor-us. But gas being of such a subtile and insinuating nature, that, like golden-hue disks, it suddenly entered into the side-excavations of two-thirds of the twelve individual bodies, before the result of the analysis could be ascertained; and, the consequence was, as with all bodies in nature which are easily impressed, that this two-thirds of the main body were astonished and marvelled much as to how the organisms producing these gases could possibly heretofore have existed, as from a correct analysis, ascertained under the binding cords of "So help me Number-one," they found that it takes two million of molecules in a row, to occupy the space of a *Millimetre*, and two hundred million, million, mil-

lion of them to weigh a *Milligramme;* that less than forty-five nickels or two hundred and twenty-five *centimes*, are not sufficient to produce one thousand feet of gas molecules in a metre, even should the metre be fifteen per cent fast in recording the diffusion of the gas molecules.

The same occurs as to the water tide, except that the analysis does not extend to its quality, this being palpable, if not palatable, to every sense possessed by the populi.

After the pipes conveying the flow of the metallic disk-tide is completed, with indecent haste, the height of the water-tides are fixed for each domicile of the populi, for the ensuing year. The height of these tides does not depend upon the number of hydro-oxygenous molecules faucetly dissipated in the domicile, but, in most cases, by the number of cubic front feet of ground upon which the domicile may be situated. Should but one or two of the populi occupy a domicile, the height of the tide-rate is the same as though occupied by a dozen, in accordance with the maxim, "A populi cannot take advantage of his own rights," in not having a dozen or more populi in his domicile.

In the planet, Educate-us, its 12 individual bodies, unlike the planet Supervisor-us, receive no monthly official-heat from the central sun. This body is indirectly, a body of expenditure; expending each year such an amount of official heat, as is permitted by the planet, Supervisor-us. And never since the birth of this planet, Educate-us, at the close of its bi-ennial revolutions, has it ever been found to have left enough of this heat to warm a shivering molecule. This planet also rotates in 2 years, but, unlike the planet, Supervisor-us, has great difficulty in doing what it pleases, because, the 12 individual bodies composing this planet, Educate-us, are the recipients of, and are kept in a constant, irritating, but pleasing and soothing itch; for, during their bi-ennial revolutions, they are influenced, controlled and cajoled in their orbit by innumerable small Satellitic single bodies, which are in such vast numbers in the Municipal sky as to make a milky-way. These satellitic bodies are erratic bodies; eccentric aggregations of matter; flashing comets; do-as-you please aerolites, which wander, like celestial beings, through the Municipal heaven. From our admiration of these blissful and seductive aggregations of matter, we have named them *Femme* stars.

These stars, in the early period of their existence, are dazzlingly bright and brilliant, burning in their orbits with a loquacious velocity.

They sometimes rush madly from their spheres, and, being influenced by the planet Curiosity, in their head-strong course, are often attracted beyond their centre of gravity, when they fall and strike a larger star, thus forming double stars. Then a nuptial-ring encompasses them; a prospective honey-moon shines upon them, and they are hurled into the vortex of Matrimony. Official death thus, sometimes, seizes them, and their scholastic revolutions are seen no more.

These *Femme* stars, after wandering in the Matrimonial vortex for some time, should the ring get old, worthless, or snap, gravitate toward their original position in the orbit of Educate-us, and by the increased loquacity of their eccentric ellipsis; the persistence of their dirunal and nocturnal evolutions; the oscillations of their loquacious stem-winders, and their teasing desires; they so inflame the pleasant irritation, as to cause a rash of exhausted patience to break out upon the 12 individual bodies which compose the planet, Educate-us.

The planet of the sanitary hue, the planet, Health-us, revolves in its orbit, hunting for smells in the Municipal System, and by the elongation of its Esculapian proboscis, which it pokes into the private orbits of the populi, causes it to smell a smell, while the acuteness of its Galenic olfactories, detects the invisible presence of various fevers.

Its favorite fever being malaria, it learnedly diagnoses its invisibility. Four of the five of the individual bodies which compose this planet, Health us, are of such contradictory aggregations of matter, that their elements never combine so as to agree upon what they do smell, and more particulary of its effects upon the populi, and still more particularly, how to remedy it.

There is one planet in this new Municipal System, which presents such a ghastly hue, that, when it visibly appears, it strikes the populi with horror. It is rotated by the Angel of death; revolves in the orbit of Self-destruction, and, from our loathing, we have named it the planet Coroner-us. When in its zenith, it sits upon the bodies of such populi who may die without giving proper notice.

It is a wise and learned planet. From a critical examination of the finger nails of a dead populi, and after cheering the friends of the deceased in their affliction by mutilating the body, for the purpose of ascertaining whether or not the nail had punctured the *meso-sternum*, this planet pronounces the death of the populi to be that of Self-destruction. From a bullet hole in the *supra-occipital* of the *cranium*, it proves that the subject died of self-inflicted measles. From a slash across the throat, it can diagnose strangulated hernia, and from the contents of a stomach can perceive microscopic Benzine. If, from what the fishes have left of a populi, be recovered—a *left* arm for instance—like Cuvier, with one bone, it can construct the whole anotomical structure; and not only show from the dislocation of the spinal column that the spleen had been ruptured, but proves that the populi died by its own *right* hand. Like a chemist, it analyzes, and by autoptically presenting ocular evidence, it extracts from an intelligent jury a verdict: "That the populi's death must have been a lingering one," and in order to console and render happy the relations and friends of the deceased, publishes the details of its taking off. This Coroner-us planet, being in its nature unselfish, seizes upon the shirt of the deceased, and appropriates the sleeve-buttons; and, in its zeal to contribute towards defraying the expenses for the last sad rites, demands a per-centage on the coffin.

The planet with the Fiery aspect, is a Star which considers itself the most important one in the system, so we have named it Fire-us-out. By some political astronomers, it is supposed to be a comet, as it never passes into the orbit of "Primary Election-us." It is visible but at intervals, being attracted only by luminous combustions within the Municipal System. A terrestrial bell announces its visibility, when it can be seen rushing through Boulevardic space, emitting brilliant sparks, guided in its Comet-like course by a "Jakey" populi. This planet, when visible, is like an hydraulic volcano vomiting forth a hydro-oxygenous compound, rendering the luminous object invisible.

The Commissioner-us planet, Hall-us, revolves, but has been known to remain motionless for long periods, hanging, like a dead brick abortion, in Municipal space. The individual bodies composing this planet, have, like old Marius, been known to

sit on the ruins of their Municipal Carthage, content to know that they may not only last during their term of official life, but be a source of misery to their Successors.

The bodies in this Municipal System, named Judge-us, are bodies whose rotations on their axes are easy and noiseless. Amid the storms of froth and foam which howl around them, they are as placid as a sleeping babe. But should an offending wind arise and ruffle their dignity, like Jupiter in his anger, they hurl their thunder-bolts, when the offender is stricken into both silence and contempt.

These planets are incubators, who sit and brood in their official nests until they hatch Decisional monstrosities. When off their nests picking up any stray grains of corn which might be accidently dropped by some careless litigant, they never cluck. The Sun, Justice-us, is supposed to guide and control these planets, but, from some perversity of nature, the intensity of its rays so affect the "A-number-one" sensitiveness of their optic-nerves, that they "can't see it," and some few of the populi imagine, that in their efforts to do so, they are stricken judicially blind. One peculiar characteristic in the brooding of these planets is, that after incubating and hatching their decisional monstroities, these monstrosities often pass into the orbits of some more powerful and overruling planets of the same order. These more powerful planets we have named, Supreme-Judge-us, who being owlish in their nature, darkness enables them to detect any defects which may have occurred during the first incubation and hatching of these monstrosities.

These planets being presumed by the populi to possess more intellectual and legal heat than other Judge-us planets, are selected to reincubate these monstrosities. So, with the pertinacity of Supremely endowed incubators, they sit, brood and sleep on them for an indefinite time.

During their brooding they pick holes, daub opinions, concur, dissent, turn over, and reverse the ends of these decisional monstrosities, so, that by the time they re-hatch them, what they do hatch, are more perfect decisional monstrosities than ever.

There is a planet in this system which is so transcendently pure, and of such momentous importance to the whole system, that we had great difficulty in finding a fitting name for it. But,

reflecting upon the precept of our mother, "to be virtuous is weakness," and, from well-impressed lessons, remembering the stern injunctions of our father, "to look out for *Number One*, to get when we could and give only when compelled;" and being aware that this planet already possessed the essence of our mother's precept, we obeyed the middle portion of our father's injunctions, and named it the planet Jury-us.

This planet revolves in a Box orbit, uninfluenced by any other celestial body. It does not rotate regularly, but has times or terms of sitting in its orbit. When this planet was formed, it was by the aggregation of all the molecules of Justice, Truth and Incorruptability, and these elements control and guide its movements.

Owing to some weakness, some imperfection of Force in aggregating their molecules, Justice is blind, Truth keeps hidden in her well, while Incorruptability, clad in mail of proof, full of convenient holes, stalks boldly abroad. The consequence is, that in this planet, when it sits, Justice halts and stumbles; Truth stops in her well, while Incorruptability perches on its axis, waiting for something tangible to come along. It is an immortal, ever-present, intelligent and wise planet. During its sittings, its essence shine with such lustre, as to cause in various other planetary bodies perturbations of fear, doubt and uncertainty as to its intentions, consequently, they endeavor to both influence and deceive it.

The comets, Lawyer-us, with their forensic, persuasive, flattering tails, endeavor to envelop it in a haze of technicalities, and from their nucleuses belch forth such clouds of facts and flattery, that, for awhile, this planet, Jury-us, staggers in its orbit. The planet, Judge-us, with its legal lore, charges upon it, and, with its judicial mantle, endeavors to eclipse it; while the prisoner, Asteroid-us, who, having pierced its inscrutableness, is aware of its future intentions, so, with stolid indifference, Asteroid-us sits, listens, smiles and gazes, but gives no sign, nor makes any attempt to openly corrupt it. But the rays of its eternal essence penetrate through all obscurations, and concentrates at a Verdical focus of Truth and Justice.

Thus the twelve individual bodies composing this planet, Jury-us, instead of being eclipsed, ignore the Judge-us. In-

stead of hanging themselves, they desire to hang the Lawyer-us: and being incorruptible, instead of longer sitting in their own orbit, they revolve with the prisoner Asteroid-us, into the orbits of Dine-us, Wine-us and Cigar-us; thus carrying out our father's injunctions, with a supplement, "to keep what they get."

Sometimes, this planet, Jury-us, is in conjunction with a lower order of the planets, Judge-us, known as the Police Judge-us; but when the planet Jury-us is not in conjunction, the Police Judge-us sits down on monsters already hatched among the populi. These populi monsters are aggregated into the planet Jail-us by a nebula of Stars, whence they gravitate within the orbits of this lower order of planets, Judge-us. Fearing that these monsters may rush madly to their spheres, they are accompanied by some of these stars.

The lowest order of these planets, Judge-us, we have named Justice-Peace-us. But recognizing the justice of not attributing the virtues of the few to the short-comings of the many, had we known of their fundamental essences, their fitness and incorruptability, we would have reversed the order of their names, and called them "Piece" Judge-us.

That nebula of stars of which we have spoken, are so numerous in the Municipal System, that no astronomical populi has, as yet, been able to count them. In their dirunal evolution at high-noon, they are seen to gather in a cluster, so as, sometimes, to obscure the planet Captain us, around which they revolve; after which, this cluster seperates. Having a silvery twinkler over their left lacteal fountain, and being bedecked with shining spots, which appear like golden-hued buttons, as they move along in lines toward their several, what we have named their Beat-orbits, they appear to the populi like speckled blue comets. Upon reaching their Beat-orbits, they shine with such attentive, industrious and blue vigilant brilliancy, that, with a piece of smoked glass, they can be seen winking in a grocery, or blinking on a door-mat.

Very few of the planets in this System are in their *perihelion* more than once during their existence, which occurs on the first Monday in January which follows the disappearance of the planet, Ballot-box-us. They complete their revolutions in their orbits in 730 days, at which time they reach their *aphelion* and

death. As all these several planets in this Municipal System are brought into official existence by the *Vox* of the central sun, the populi; and as the elements of matter which go to make up a perfect Municipal planet are such that, during their 730 days existence, they are never in *conjunction*, but always in *opposition* to the populi; thus the individual portions composing these planets, are seldom again brought in official existence.

But during the existence of these planets they rotate on their axes, which are all ground before the end of their 730 days rotations, and, during this time, with their poles, they knock official persimmons. They are always in their zenith when the digits of their right angles are elongated to such degrees as to bring them in conjunction with the planet "See-me." Then an occultation takes place, causing a transit of the planet Acquire-us. This transit increases their *mean* diameter, producing an obliquity of their winking optics.

The reason why these Municipal-planets, as whole bodies, seldom make two successive bi-ennial revolutions, is owing to the formation of concentric-rings, which, during their first existence, form within them. Besides, each one of these several bodies, which possess the power of dispensing official rays, is encircled by an enormous and powerful Ring, known as the great "Boss-us." This ring occupies such a low position in the system that it cannot be seen by an honest eye, and its existence is known only by the populi from the effects it produces upon the various bodies it encircles and controls.

This great "Boss-us" ring is sometimes broken into contending fragments, but it speedily reforms, owing to the powerful attractive influence of the planet, "See-me," which causes a concentration of the official rays and Golden-hued circular disks into the Ring. These disks are metallic bodies, very numerous in the Municipal system; and when they aggregate in large quantities in some of the populi bodies, they afflict them with a Midas itch. When so afflicted, the only relief afforded is by adding to the disease, for which purpose, these itching populi in scratching for more disks, often scatter them into the ring.

Although these scattered disks are invisible to the mass of the populi, they can be readily seen by the ring, for they shine like the tail of a Seducing comet. These disks, when scattered, are

not only attracted by the great "Boss-us" ring, but by all the rings formed by the individual bodies composing the various planets. Thus, when a sufficient number of these disks aggregate and form a nucleus, the planet, "Job-us," becomes visible.

We watched with anxious interest, not unmixed with a selfish one, the forming and reforming of these Rings, endeavoring to discover the real cause of their formation, and found that it was owing to the holes or side excavations in the individual bodies composing the planets, as without these holes there would be no rings. We also found these rings to be a sort of celestial tape-worms, and, like Prof. Huxley's tape-worms in man, were helpers to the planets. Huxley says, "Man is a helper to the tape-worm; if there were no men, there would be no tape-worms." So, if there were no holes in these planetary bodies into which these golden-hued disks could fall, there would be no rings.

Young gentlemen, we have already spoken of the great number of Nebulous Stars there are in this Municipal System. These stars are the most wonderful objects in the Municipal heaven. They are all numbered; often motionless when they ought to be moving; but are always found in the wrong place at the right time. When they are visible in their orbits, they assume a blue color, but give no light, except, as we said, a small starry twinkler over their left lacteal fountain. They carry a toothpick in their side excavations, about the size of a rolling-pin.

These Stars are picked out from among the populi by the planet, Police Commissioner-us, and are selected on account of their natural kindness. They must have a good many of the Dove molecules evolved into them. They must be kind and gentle with the erring, or they will not occupy a position in a "Beat" orbit.

To ascertain whether or not they possess these elements, the planet, City Doctor-us, examines them, and certifies that they are strong enough to knock down a blind crippled populi; *provided always*, that he is doing nothing but minding his own business, and merely grinding "Sweet Bye-and-Bye" out of an organ on a street corner, where the wind is strong enough to blow his blind eyes open. The City Doctor-us also examines their lacteal fluid, to ascertain if they possess the milk of human kindness;

also their *os coccyx*, to learn, should the cripple hobble away from them, whether or not they would turn their rudimentary tails and run. But should they do so, they will be excused by the law, in accordance with a maxim of jurisprudence in the System, "Every man is responsible for that which no man can control."

These stars are under the more immediate control of the planet Chief-us, which keeps them going so lively in their "Beat"-orbits, that they have plenty of time to do nothing but "beat" the cyprian-goddesses and gong beaters of Buddha out of a "Two and-a-half" piece in each dirunal rotation of the planets in this Municipal system. These stars are so busily employed, that they have plenty of time to sleep, thus complying with another legal maxim, "The law does not help the vigilant, before those who sleep on their rights." Conseqently, these stars, being vigilant, have the right to sleep on their "Beat"-orbits, like a horse, standing up. So in this way they keep going all the time; comply with the law, and get a'-rest. The oftener they are a'-resting the better pleased is the planet Chief-us.

The reason why these stars are always found in the right place at the wrong time, is owing to another maxim of the law: "The law always requires impossibilities." So, of course, these stars are always found where they ought to be; because, being metaphorically present, their buttons make them ubiquitously absent. Thus, if the goods of a populi are being carried off in the "Western Addition," these effulgent, see-nothing, free-lunch, car-riding stars, are, like an odorous mackeral, seen shining down on the City-Front, perpendicularly oblivious, with a post behind them.

This part of their orbits is an easy place for a star to have a'rest; because a great number of tarry, neptunian populi are there, revolving toward their ship-orbits; oscillating on their poles, and rolling like a ship when she tacks. Then the vigilent maxim wakes up; a star lights on the tarry populi; a collision takes place; the rolling-pin leaps into visibility, and the tarry populi ceases to oscillate. Then flows the milk of human kindness. Then the dove molecules run along lines of least resistence. Then motion is imparted to the blue *os coccygis*, and the star lifts the populi; talks to him sweetly to cheer him in grief,

and, with the strength of pity, snales him by the neck forty blocks to his downy couch of asphaltum. With the blankets of mercy and sheets of affection it covers him. With soft, granite pillows it lulls him to his balmy sleep, and, with maternal anxiety, watches him while he slumbers.

Ere the rays of the orb, Light-us, peeps through the iron lattice of his chamber, and while the air is redolent with mephitic perfume, the dove-star, in the soft, sweet accents of love, whispers to him, "git-up! you scion of a noble house descended on the mother's side from the *canis terrarius!*" And while, from the Star's morning's nip, pity is twinkling in its left eye, it tells the populi, "if he wants anything, it will revolve him into the orbit of the Police Judge-us, where he'll get it.

After being regaled on a cup of the milk of human kindness and some crumbs from the loaf of sympathy, the tarry populi finds himself in the privacy of the Judge-us chamber; when this planet asks: "What's this Neptunian populi been a doin' on?" Then the lambly star which had cared for him, tells the Judge-us:

"Shure, an' he tried to bite me, yer 'Oner. Win I axed 'im, werry kindly an' aisy, yer 'Oner, to come along wid mesel' yer 'Oner, he sed, yer 'Oner, he wuz going to his ship, an' was hungry, yer 'Oner? so I wuz 'fraid he might ate me sthar, yer 'Oner. Be jabers, I'd sooner he até mesel,' nor me sthar, yer 'Oner."

Then the Judge-us asks the Star, "when he ceased to oscillate, did he resist? Did he fight back?" With a celestial exclamation of "Begob!" The star says:

"Be de holy fader, yer 'Oner, I don't know, but he might yer 'Oner, if I hadn't played Fives an'-forties wid Club trumps, an' Donnybroke the head av' im, yer 'Oner."

The Judge-us then asks the tarry populi. "What have you got to say about it? Come! Out with it!" The populi, after wiping the blood off his face, says:

"Blow my liver! I want to get 'board ship. I could a got 'board easy 'nough, if that bloody land-lubber there with the buttons on hadn't stopped, and beat me over the head with a marlinspike."

Then the Judge-us says: "My dear man you must revolve out of the way of the Officer-us."

"The Officer-us be blowed, I was only two sheets in the wind, an' had my bear'n's all right, when that lubberly Officer-us run foul o'me. I seed his glim, that twinkler there, midships, an' I port my helm; but the son of a sea-cook tacked; bore down on me, an' swamped me with his marlin-spike."

You must not think, gentlemen, that these Star-us bodies are the same kind of stars as the "Star-route-us" bodies are with us, because these latter stars are like the women; they put up jobs on the *mailes*, and revolve in the orbit of Mercury, the celestial God of thieves.

End of Lecture Four.

LECTURE V.

No Impossibility in Nature.

Young gentlemen, before we get into the new World, and discover what may seem to you as impossible, we had better show you that in nature all things are possible; that an entire reversal of everything in our present order of things in this world, is possible.

Philosophers distinguish three sorts of impossibilities, *i. e.*, metaphysical, physical, and moral impossibility. A metaphysical impossibility, may, perhaps, be properly called an absolute impossibility. The physical might be called natural impossibility, and the moral, ordinary impossibility.

As our premiss is the theory of the Self-existence, or No-beginning of what we call Nature, we shall confine ourselves to the physical or natural order. Should we find any impossibility in this order, our philosophy will be false for a philosophy which conflicts with nature is no philosophy.

When we affirm Possibility, the idea expressed is the negation of Impossibility. When we use the word Impossible, we express the ideas of exclusion, of opposition, of contradiction, of repugnance, between two or more things. When the contradiction ceases, then we conceive what is meant by possibility. We therefore ask,

First: What is Possibility? Possibility depends upon the power of the agent or cause. No agent or cause can produce an effect that is absolutely impossible. The possible then is, that in which there does not exist the essence of contradiction. In logical terms, that in which the Predicate is not repugnant or opposed to the Subject.

Second: What is Impossibility? Impossibility consists in that, in which there is contained the essence of contradiction. Absolute impossibility regards the essences of things. A thing is absolutely impossible when its existence would imply the absurdity, such as, that a thing can be other than itself; a thing

to exist and not to exist at the same time, or for a triangle to be a circle; because it would and would not be a triangle, it would and would not be a circle. In logical terms, when the Predicate is repugnant to the Subject.

Before we can assert a thing to be impossible, we must be able to clearly conceive it to be impossible, that is to say, that it involves a contradiction. When we assert the impossibility, say of an act of nature, we are bound to have the *presence* of contradiction by demonstrating the *presence* of mutually exclusive attributes. You must remember, gentlemen, that our inability to conceive a thing to be impossible, is no proof that it is impossible, because our inability to conceive *how* a thing can be possible, is only limiting the capacity of our minds, but not the possibility of the thing. It is one thing not to be able to conceive a thing, and quite another to conceive a thing to be impossible.

Prof. Credo says, that "while we cannot conceive *how* God created the world, we can conceive no impossibility in a creative act. It is one thing to be able to conceive of the possible existence of a thing, and another to be able to conceive *how* it came into existence."

But with possibilities in the supernatural order, we are not concerned in this argument. Still, should we admit a First Cause, there is some force in the Professor's remarks. But we philosophers deny a First Cause, and assert a No-beginning of anything, while, at the same time, some philosophers account for the beginning of everything by a so-called law of Evolution.

Admitting with some philosophers that we can conceive a thing that is impossible, still, none pretend to say that we can distinctly imagine a thing that is impossible. And why not? Because, to imagine an impossible thing is, *ipso facto*, to imagine the impossible thing *itself*. If we could imagine Nothing to be the negation of Something, we would be imagining Nothing *itself*. If we could imagine no limit to space and time, we could imagine Infinity *itself*. Thus, until we know all the laws of Matter, and, mark you, all the laws of Mind, we are not in a position to pronounce anything impossible.

Now, what do we understand by the Probable? Probability belongs not to things, but to our calculations about thihgs, while possibility is the essence of things. Possibility and probability

can never antagonize or exclude each other. The probable is always possible, but the improbable is equally so, and the possible may be probable or improbable, that is, may or may not happen.

You may imagine any number of probabilities, but you can never deduce from them a certainty, and much less can you exclude possibility of the opposite. A conclusion deduced from possibilities is at least only a probable conclusion. Impossibility of course, excludes all probability, but improbability does not exclude possibility. Probability, therefore, is that which can and may happen, while impossibility is that which never can happen.

Now, how do we judge of that which is possible, impossible, probable and improbable? Experience tells us that man receives his ideas either directly or indirectly, through the medium of his senses. It is through the senses that we gain a knowledge of the Known and the Unknown, and a knowledge of things which never acted on the senses. Thus, in some heretofore unknown and unexplored portion of the world, should an explorer discover the ruins of a deserted city, his sense of sight would testify *directly* to the existence of these ruins or the Known. These ruins would reveal to him a knowledge that there once existed a people who built and inhabited this ruined city. In seeking further knowledge of these people, he digs and delves among these ruins. He discovers a gold ring, a bracelet, a chased vase, a bronze or marble statue, implements of war, etc. These objects further reveal to him the knowledge that these lost people were advanced in the arts. Should this explorer continue his explorations into other lands, and discover ruins of habitations made of sun-burnt bricks, and among them find a stone pestle and mortar, some arrow-heads made of flint, or some spear-heads made of bone; these objects would reveal to him the knowledge that these lost people were uncultivated in the arts; also, a knowledge of their once actual existence, and a general idea of their condition and mode of life. None of these latter have acted on the senses of this explorer, and before the former acted on his sense of sight through which was transmitted to his mind *directly* a knowledge of the existence of these objects, and, *indirectly* to his reason a knowledge of a once existing people,

they were to him as if they had never been. Thus, through the senses, we acquire directly a knowledge of the Known, and indirectly a knowledge of the Unknown. In other words, when our senses perceive, our reason comes to our aid, and shows us objects which our senses do not perceive, from their relation to the objects which our senses do perceive.

Gentlemen, we shall endeavor to show you, that in the physical or natural order, impossibility exists nowhere outside our minds; that we perceive things only as they offer themselves to our minds; that our judgments of what is posible and impossible are formed from this perception of things through the senses. Aristotle tells us, that "there is nothing in the understanding which has not been first in the senses."

Without the senses, the intellect is dormant and inactive, for it cannot acquire the knowledge of beings either through an act of faith, or through an act of reason, unless aided by a supernatural power. We, therefore, can form a judgment only of what is possible or impossible in the physical world, from the testimony derived from the experience of our senses. If our senses did not inform us, we could not think it possible for the giant oak to be produced from the acorn, nor a beautiful butterfly from a filthy, shapeless caterpiller.

How can we assign boundaries to the realm of possibillty? In proportion as the field of experience is expanded, new phenomena are discovered; thus, the magnetic, attraction, electricity and galvanism have been added to experimental science. In these phenomena, there are agents at work which are not perceptible to the senses. Why may they not be disposed in such a way as to be perceived like other bodies? Where is the limit of these agents? We know not; but, reasoning from analogy, we may believe that there are many others whose existence is not known to us. Balmez, says:

"The perfection of a sensitive organ by means of instruments, is an arrangement by which we vary the ordinary system of the relations of our body to those around us. It is therefore, probable, that in the universe there are many beings which are imperceptible to our senses, but with a modification of our organs, or change of some of the laws of nature would render sensible. *Sound philosophy should not circumscribe within the limits of human reason the sphere of possibility.*"

Had we the additional and necessary senses to perceive them, what may there not be existing all around us? There is no intrinsical impossibility for the existence of additional senses to those we now possess. Lamennais, writes:

"Perhaps a slight modification in our organs would be sufficient to ruín our whole science. Perhaps there are beings so organized that their sensations are wholly opposed to ours, and, what is true for us is false for them, and, reciprocally. What necessary connection is there between our sensations and the reality? And if there were such a connection, how could the senses make it known to us?"

Now, let us understand what sense and sensation mean. What is Sense? Sense is a faculty or power, by which the properties or states of external things are perceived; the effect produced on the mind by any thing that acts on the senses. What is Sensation? Sensation is the perception of impressions transmitted to us by the organs of the five senses; the immediate effect produced on the mind by something acting on the bodily organs, such as the feelings we distinguish as light, heat, sound, odor, taste, pressure, etc. Whatever absolutely contradicts the evidence of these senses, the reason and understancing rejects.

Thus, should you shut your eyes and pick up a ball or globe, your sense of feeling will convey to your understanding that it is round, and would reject the supposition as impossible, that the object can be a cube. In this case, your three other senses cannot convey to your mind any knowledge of this quality of form. Taste, hearing and smelling have no power to inform you of the absolute existence of this object, nor whether it be round, square, hard, soft, rough, smooth, large, small, cold or hot, etc.

There is another standard by which impossibilities are measured, viz: Those things and condition of things which are contrary and contradict the *Universal experience of mankiud.*

This standard by which to measure the possible and the impossible of some things, is quite potent, and is often used by philosophers when endeavoring to sustain their theories. But we deny this evidence, deny that the universal experience of mankind is any test or proof of possibilities or impossibilities in nature. We shall find, that what has been considered actually impossible by mankind in one age, has become possible and actual in another age.

When, with our finite powers our inability to judge of what is possible and impossible, and presume to measure the power resident in the infinite, we are arrogating, and calling ourselves gods. We have not yet learned what constitutes the essence of a single atom. We cannot demonstrate the actual existence of a single molecule of matter. So we are not in a condition to pass a judgment upon what is possible or impossible in or outside of nature. Should, what we call Nature, be finite, then, we must bow down our Finity, and say to the Infinite : All things in this finite order of nature are possible with Thee.

While we cannot picture to our minds the infinite, our reason tells us, that no thing of which our senses give us knowledge, can be infinite. Whatever may be the unimaginable extent of finite things, they must be contained in the infinite. There is not an atom in nature but is limited to its own individual Oneness.

Now that we understand what sense and sensation mean, we can understand how it is, that through the senses only, can we know that there are external beings outside ourselves, which pro duce in us the effects we call sensations.

We do not know the intrinsical nature of a sensible thing, nor of matter. It is our sensations which place us in relation to the external world. Thus, we can know *reality* only by experience. No words can convey an idea of reality to one who has never experienced it. What is to see, to hear, to taste? What is a sensation or feeling of any kind whatsoever? It is an inward phenomenon of which we are conscious. A word is enough to indicate the phenomenon, but the word has no meaning for him who does not perceive it now, or has not experienced it at a former time. No possible explanations would ever enable a man born blind to understand color, or a deaf man sound. Each may have conveyed to him every word that all the philosophers have ever said and written on light, colors, and sound, but he can never imagine what they are. These manifestations of nature to such an idividual are, to him, as if they did not exist. Thus, as we can and do exist with a less number than five senses, Balmez asks :

"Is it certain that we have only five ways of sensations? I have some doubts on this point. Is there any intrinsical impossibility of an organization different from ours, and an order of sensations different from those which we experience? It seems not. There is no necessary relation, nor even analogy, between the object and the effect which it produces in us. The existence of another sense is then possible. At least we see no impossibility in it. If then, an entirely new order of sensations is possible, there may be beings with six or seven senses. The imagination cannot conceive their nature, but reason sees in them no impossibility. Our experience shows us that we may at least infer, that nature is far richer than we imagine. Philosophy may enable us to see what *may* be, but not what *is*. If we have any real certainty, scientific, or phenomenal, it arises from the testimony of the senses. Therefore, different sensative faculties are not intrinsically impossible."

Now, let us understand what the Insensible is. The Insensible is that which does not experience that it *is*; there is nothing in it but itself. The Sensible experiences that it *is*; there is something in it besides itself—all it feels, all that is represented in it. The insensible, although surrounded with beings, is in complete isolation—in solitude. The sensible, although alone, may be in a world of infinitly varied representations, and it is the organs of sense which enable it to experience their external existence. Should these organs be destroyed, the existence of these external beings which caused the sensations in the being before their destruction, would still exist; light, sound, odor, sweet, sour, soft, hard, heat and cold, would not disappear from the universe. It would be only, that they have disappeared from the *ego*, the *me*, and, from the loss of these senses, the only novelty to the being would be the non-existence of these sensations.

The sun would still pour out his immense torrents of fluid we call *light*. The moon and the stars would still shine and move in their orbits; the lightning plough the skies; the air vibrate; the torrents dash, and the cataracts roar as before. The gardens would not be despoiled of their beauty nor the fields of their verdure. The cane would still yield its sweets; the odors from the spice-groves would still be wafted on the winds, although the being could not feel its rushing, nor smell the perfume it bears. The rocks would still be hard, and the down upon the

breast of the eider-duck be as soft as before. The whole universe and all it contains would still exist.

Thus, the impossibility for the existence of these external beings would be so only to the being which does not possess organs of sense upon which external manifestations could make impressions. Destroy the five senses, and you would be plunged into that unutterable blank of insensibility which existed before the Fiat went forth, "Let the earth bring forth the living thing." To the Ego, the *me*, there would be nothing; no universe; all around it would be annihilated. It would be in inconceivable solitude. There would exist within it nothing which could inform it of its existence.—Frightful thought! Destroy the sense of feeling in your right arm. Thrust it in the furnace, and the only knowledge you would have of its destruction would be, that of seeing it consumed; hearing the cracking of the bones, and smelling the odor of the burning flesh.

The Value of the Testimony of the Universal Experience of Mankind as to the Possible and Impossible.

Young gentlemen, let us now examine what are and have been considered possible and impossible realities from the universal experience of mankind. Supposing there had never existed on the earth any animal, except man, larger than a mouse; nor any flying creature larger than a humming-bird. The universal experience, and from this experience, the universal opinion and belief of mankind would be, that the mammoth and the condor would be impossible things in nature. It is not absolutely; there is nothing intrinsically impossible to prevent a race of men from being born with their heads reversed on their shoulders, yet, in every other respect, be like ourselves. You may think that this would be, at least, practically impossible. But why do you think it practically impossible? "Because such a man could not guide himself; nor be aware of danger. It would be impossible for him to perform labour, etc." Then it is because your minds perceive the practical impossibility? But such impossibility does not exist. It is simply ideal; for it is your minds that make the impossibility. You may assert, that "the impossibility of their existing is not ideal, but real." But how can

that be, if the impossibility does not exist? Thus, you are only imagining the impossibility of their existing in reality, because it contradicts your own and the universal experience of mankind, as no living thing has ever been known to have its head in such position. Gentlemen, you must not use the absence of knowledge, or experience as equivalent to their presence, you must not argue from your ignorance of possibilities as though that ignorance were knowledge of impossibilities. Arago says: "Outside of mathematics, let no man pronounce anything impossible."

According to the theory of Creation, and from the logical conclusions which must be deduced from the Self-existence and Nebular theories, the world did not once exist in its present form. If it did not, then the possibility was there for it to exist; this depending entirely upon the power of the agent or cause, be that agent what it may; a Creator, Force, Evolution, or any other power or cause. In our argument we do not go back to a primal cause of things, but we take nature as we find her; call her this agent, and claim, that in the physical or natural order there exists no impossibility.

Let us test your impossible reality. Our reverse-headed man has a real head. It being on his shoulders is real. He is a whole, real man in every respect, as much so as a man born with extra fingers and toes. Nature has produced many, what we call monstrosities. Mr. Darwin informs us that:

"In Bonn, Jewish children are born already circumcised; and the Sioux Indians frequently are born with holes in the lobes of their ears and marks of the tatoo inherited from their parents."

Prof. Haeckel tells us:

"If six-fingered men were always to marry six-fingered women, these characteristics would become permanent, and a special six-fingered human race would arise."

Suppose, through some freak of nature, some man to be born with his head reversed. There would be no more impossibility in a race of men being produced hereditarily from this parentage with their heads reversed, than there would be in the case of the six-fingered race, or in what Prof. Haeckel further tells has taken place, that:

"A race of oxen has become a *permanent* one, all born without horns, descended from one bull. Also, a race of tailless dogs, produced by cutting off the tails of both sexes for several generations."

Supposing we had said, that it is possible for a man to be born with two heads. You would think this a still greater impossible reality in nature, and yet, in her freaks, she has, Spandingini tells us, made a goat with two heads and two throats; ate with both mouths, but, in every other respect as perfect as other goats. Had this goat lived long enough, why not a race of two-headed goats as well as six-fingered men, hornless oxen and tailless dogs? As, according to Mr. Darwin, "like produces like, the offspring is like the parent." And what would you think of an animal being born alive and kicking, without a head at all? Yet, St. Clair tells us, that "he saw a goat which was born without a head, perfect, otherwise, in every respect." Where is your impossibility in nature now? She is prodigal in variety, but niggard in innovations, but not on account of impossibility. She is far richer than we imagine, and has no such word in her lexicon as impossibility.

What do we really know of her possibilities or of her secrets? According to Prof. Huxley, "a living organism is nothing more than a molecular machine;" and, according to Mr. Spencer:

"Wherever we uow find being so conditioned as to act on our senses, be it a single object or a whole universe, it must have had an antecedent existence under a sensible form, and will have a subsequent existence under a sensible form."

Prof. Haller tells us, that:

"No really new formation takes place during what is called the evolution of each individual organism, animal or plant, including therefore, Man; there is only an unfolding of parts, all of which have from all eternity been present, pre-formed and complete."

According to this, these monstrosities, these two-headed, no-headed goats, six-fingered men and women, existed eternally in the germ state. But what is this molecular machine? What is this form which exists in the imperceptible? It can be itself only; only what it was and is, its own individuality. Whether it self-existed, was self-created or was created by an external agency, it must ever remain itself, and because it has ceased to

act on our senses, this is no proof of its non-existence. According to the self-existenee theory, whatever may be the object, it always *was*, as something cannot come from nothing; and, as on the theory, non-existence or annihilation, is an impossibility, therefore, as we have already proved, "Whatever Is, always Was."

We are not upon this subject now, but as it occurs to us, we would ask, in what obscure corner, or condition did the flame of the lamp lay before it was kindled; was it a non-entity? No, non-existence is an impossibility. What has become of this flame when blown out? Has it been annihilated? No, annihilation is impossible. Then, on the theory, the flame of the lamp existed before it became so conditioned as to act on our senses, and when it ceases so to act, it still exists in the imperceptible. Granted. For while we perceive its existence, the blind know it not.

If every object in the physical world is formed of molecules, which are all different, assorted into sets, and never die; and if as Haeckle says, the potential or possible exists in the primary molecules, for the actual existence of every individual thing, should the aggregation of the molecules out of which such individual is to be formed take place; and if the molecules of an individual *once* aggregated, and so conditioned it as to act on the senses of other individuals, where is the intrinsic impossibility for it again to become so conditioned as to act on the senses? Possibilities and impossibilities do not depend upon our ability to conceive them. You cannot conceive of the possibility of a little seed producing a giant tree; and were it not that you have acquired through the senses a knowledge of its possibility, you would imagine that you could conceive of its impossibility.

How do we know that all our fools and wise men are not the re-aggregations of the molecules of individuals who have visibly existed before? There is no absolute, no natural impossibility to prevent the molecules which *once* aggregated and formed Homer, to again have re-aggregated and formed Shakespeare, or that those of Erastosthenes, Pythagoras or Tcheon Kong, formed Newton; those of Alexander the Great, Cæsar, Cæsar's Napoleon, and those of Old Skepticus Bob Bangyoursoul. This new theory in philosophy we shall fully enter into when

we come to our theory, and to examining Mr. Darwin's "Origin of Species," particularly the individuality of species, and the natural cause of their continuing existence.

Again, as we have said: How do we know what may not be going on all around us had we the necessary senses upon which phenomena could act, through which we could perceive them? There may be more truth than many suppose in what we are told of the ancient Oracles, and of our present so-called Spiritual manifestations, Tradition; the Bible record, and Profane History are filled with accounts of these manifestations, which evidence to us that the human race, the learned as well as the ignorant, has ever believed in the existence of non-corporeal, intelligent existences or spiritual beings, and that they can communicate and have intercourse with men. Notwithstanding there is much fraud and trickery perpetrated by so-called spiritualist mediums, but, behind all these, there are facts which cannot be explained on any hypothesis save that of the existence of non-material intelligent beings.

It might be said, "that if this be true, it does not come within the scope of our argument, as these beings would belong to a sphere outside or beyond nature." We do not know that. If it be true that they do act in and on material things, have intercourse with men, and produce sensible phenomena, they may, for aught we know, be within the order of nature. Whether these beings produce sensible phenomena, is a question of fact, subject to the same tests and provable by the same kind of evidence by which all other sensible facts are tested and proved. But why has mankind in its universality always believed in the existence of these non-material intelligent beings? Because their *reason can find no impossibility in it.*

But we will confine ourselves to what is admitted to be within the order of nature; to those wonderful secrets of hers which have and are being revealed to us in these latter days. What are we to think of her possibilities, when one being, a man, who seems to possess some occult power by which he is enabled to put another man into a peculiar condition—the so-called mesmeric sleep; and so control him that he is like the clay in the hands of the Potter? And while in this semi-unconscious condition there is, or seems to be, awakened or called into life a

hitherto unknown dormant sense or faculty by which he is enabled to read the very thoughts of a third person; and while still in this condition, possessing no volition of his own will to cause action on his muscular organization, for his organs of speech to physically utter the thoughts of this third or more persons? Where is your impossibility in nature now? Only in your minds.

Look at the wonderful discoveries in Chemistry! See what the chemist is doing in his laboratory with his combinations and analyzations of different sets and kinds of molecules! Yet remember, notwithstanding all the wonderful combinations of molecules made by the chemist, nature in her laboratory has made still more wonderful combinations. She tells the chemist: "You may amuse yourself experimenting; and in combining my different atoms of matter endeavor to make a substance different from that which I present to you. You may analyze the different kinds of atoms of matter of which I am composed into their component parts and elements, and undo my physical combinations; but a single atom of me thou shalt not destroy, nor a single essence change. And take ye care how ye mix me in your crucible. Have a care how ye pry into my secrets, or I will hurl destruction upon ye. There lies hidden in one single atom of me, the power to destroy a world. In one atom of me, there lies the strength to hold the worlds asunder. In me, exists the possible; in ye, the impossible. Thou art finite in thy efforts. I am infinite in results. With thy power, ye attempt the impossible. I, with mine, accomplish it.

Young gentlemen, before we get to other proofs of possibilities in nature, let us further consider the question of impossibilities; and the value of the testimony from the universal experience of mankind. Remember what we have already said in regard to the age and time when so considered; of the seeming and believed impossibilities of one age becoming the possibilities of another age.

Suppose there existed some ancient book, which had been read by the entire human race up to the beginning of this century, which book described, that, "in their blacksmith shop Vulcan and his Cyclops had forged iron into beams, bolts, bars and sheets, and, with these, had built ships over 500 feet long;

that a Steam-god, resident in these ships, did, with his outstretched hands on either side, or with one hand thrust out at the stern of one of these ships, propel it over the trackless ocean at a speed of over 25 miles an hour; that the people on the ship could feel the pulsations of the heart of this god, and could see the breath of his nostrils, like black and white clouds issuing from the bowels of the ship. That the drink of this god was supplied by Neptune; that his food was black rocks, dug from the bowels of the earth, which Prometheus had animated with the fire he had stolen from heaven; that when properly fed and cared for, a child could control this god, but when he was angry, Jupiter could not restrain him; that these gods often in their rage, would rend the ships, hurl them to destruction, sinking them with themselves to the bottom of the ocean." What would have been the testimony from the universal experience of mankind, as to the truth of such a description up to the year 1800? Why, that such things were impossible; contrary to the laws of nature for iron to swim; contrary to the universal experience of mankind; a fable, an ideal creation of some fertile brain. But their possibility would have existed only in the minds of those who had read the book, while to us, they are visible, tangible, existing realities.

Again: Supposing some savant or philosopher in the year 1800, who, of course, would have been pronounced a lunatic, had told your scientific and philosophical grandfathers that, "there was nothing impossible in nature; that there were locked up in her store-house, secrets," and had prophesied, "that their grandchildren, aye; even some of their children, would find the key, open the door, and drag thence into visible reality several of her infinite possible combinations. That one of their grandchildren, a blacksmith, will, before the age has reached its manhood take nature's combinations of molecules forming coal, and with them, in his blacksmith shop, build a fire, forge her molecules forming iron into a cylinder, put into this cylinder her molecules composing the water in which he had washed the soot from his face and hands; beneath this cylinder put some of the coal with which he had made his fire, and then, using the strength of a child only, will cause this cylinder to move backward or forward, and travel at a speed of a hundred miles an hour—over the hills;

through the valleys; through the woods; across the rivers; over the trackless deserts; beneath the burning sun; through the driftiug snow; climbing the summits of the Sierras; burrowing beneath the Alps, dragging after it, with a ring of iron, no thicker than a walking stick, huge boxes like houses, 60 feet long; full of oxen, sheep, horses, wagons—aye! And ships, thousands of tons of coal, iron, lumber, and other merchandise; and in boxes, like palaces, with hot stoves to warm them when the weather it was cold, and ice to cool the water when it was warm, for the thousands of people in them, sleeping, eating, drinking, smoking, talking, reading, making love or nursing hate." What would your grandfathers have said to this? "Impossible!"

And then, if this lunatic had further prophesied, that "when the blacksmith had stopped his cylinder, over a thousand miles away from where he started, one of their grandchildren would jump from one of these boxes called "Palace cars," and would receive a message from his housekeeper, which message had been waiting for him over eight hours, telling him, that "his wife had eloped with the Butler." And, then if this philosophical lunatic was not yet sufficiently insane, had prophesied, "that this grandchild would speak into a little hole and call Mary!—who was a thousand miles away—and ask her: 'Have they carried off the spoons?' That he could hear Mary answer 'Yes;' and he would know it was Mary who answered, because she spoke through her nose."

If your grandfathers had been told all this, they would have pitied the poor lunatic who spoke, and have exclaimed, "Impossible! It is contrary to the laws of nature, and contradicts the universal experience of mankind." Where would your grandfather's impossibility be then? Nowhere outside their minds. Yet, the last part of this lunatic's prophecy, your grandfathers could have conceived and believed possible from the universal, or any other 'versal experience of mankind, not only of the age in which they lived, but of all ages—that the elopement was not only possible, but quite probable.

But our crazy philosopher has not yet finished. Supposing he had prophesied, that "one of their grandchildren would break an egg; spread it over a piece of glass; pour over this some bromide of silver; put this glass into a little box with a hole in

it; seat another grandchild in front of this hole, and, if he had a pimple on his nose; had acquired a black eye in a fight; was whiskerless from his connubial contentions; had been rewarded with a wooden-leg for his patriotism, or lost an arm fooling with a buzz-saw, nature, with the sun's rays, would imprint them all on the pane of glass in less than a second, and infinitely more perfect than Raphael could have done when he was, as Huxley says, 'potential in his fires,' or even after Raphael and his palette had come into actual, visible existence."

Before this mad philosopher gets put into a straight-jacket, let us hear a few more of his ravings: That their grandchildren will make lightning; that "Ariel," or some other fellow, will "put a girdle round the earth;" that two of their grandchildren, should they sit in a room back to back, and without speaking a word, but by simply touching a little button with the end of their fingers, will be able to communicate their thoughts to each other, and which thoughts will pass around the earth, as their grandchildren will discover, and use an element in nature, which ignores distance, laughs at motion, and says, I am here, I am there at the same instant.

Further, remember, gentlemen, that time is nothing in itself; has no proper existence; being nothing more than successive changes in finite entities. Time is but a term which we use to denote the rate of motion of moving bodies. Absolute motion means nothing more than a change of the position of bodies among themselves. If there were only one body, there could be no motion, for motion is necessarily the passing over a distance, and there can be no distance nor time, where there is only one body.

Thus, when we speak of the motion of the Earth, we say that it moves and rotates on its axis at the rate of about 1000 miles an hour. So, at this rate of motion, it takes the earth, we will say, three hours to bring San Francisco, California, beneath the rays of the sun which strike Washington City, say, at 12 o'clock, M. In other words, it takes San Francisco three hours to reach the position in space occupied by Washington City three hours before.

Now, supposing this lunatic had said to your grandfathers, that "one of their grandchildren, aye! Even one of their

children, by standing on the steps of the Capitol at Washington, say at 12 o'clock, M., and exclaiming: "There is nothing impossible in nature!" will then, by touching a little button, be enabled to transmit these words 10,800 times faster than the earth moves, to another grandchild living in San Francisco, Cal., 3,000 miles distant, who will chalk these words on a bulletin-board at 10 o'clock, A. M., of the same day, or three hours before the first grandchild uttered a word." Where would your grandfather's impossibility in nature be then? Nowhere outside their minds; which would imagine that at least, they could conceive of its practical impossibility. Yet, this possibility is real, and always existed in nature.

At this stage of our mad philosopher's ravings, your grandfathers have come to the conclusion that he is too dangerous to be abroad, and have seized him preparatory to putting him in a straight-jacket. In the mean time, he tells them, that "their grand-children will make a machine by which can be heard the voices of the dead. That if this machine, which was possible, existing, as it must, in potentiality, had become actual at the time of Noah, Abraham or Solomon, that with it, it was not only possible, but actual, for your grandfathers to hear the very words they uttered when alive."

He explains to your grandfathers, that by merely turning a crank fixed on a roller, a piece of tin-foil could have been so conditioned as to emit the voice of Cheops, and that they could hear him giving orders how his pyramid should be built; also, the voice of Demosthenes as he thundered forth his eloquence in the Grecian Assembly.

Our mad, but now raving philosopher, finding that he has now laid the last straw; broken the backs of your grandfather's pity and patience, and that they are in real earnest, shrieks for Prof. Haeckel and Mr. Spencer, who come to his aid, when the Professor cries hold! "we cannot deny the potentiality of all things in the molecule. Even Plato might never have come into actual, visible existence, [and he was a much more complicated molecular machine than a Phonograph,] if his peculiar molecules had not aggregated and combined." "That is so;" said Mr. Spencer, "and, gentlemen, you are mistaken in regard to the mental condition of this philosopher. Cease your using

force and listen. All his prophecies will be fulfilled, because, they are possible, that is, if the necessary combinations take place. I also predict that they will all become actual, long before I finish my 'New System of Philosophy,' wherein I shall assert, that:

'Force made the molecules aggregate so as to form the universe, the world and *everything* in and on it. The materials were there. It only wanted the *necessary combinations.*'"

Gentlemen, these philosophers are right. Leaving aside the mode of aggregation of the molecules, it is certain, if you can get the "necessary combinations," you can make anything. Now, reflect a moment. Quiet your imagination; let reason speak, and you will find that in nature there is no such thing as impossibility. If the absolute possibility for the real or actual existence of the phenomenon called the Phonograph did not exist at the time of Noah, Abraham, Solomon and Cheops, it could not be possible now. That which is not possible, *absoluta*, can never become so. Remember, that Time is no factor in this case. That which *can be*, was eternally possible. The existence of the phonograph has become, as we may say, an actual truth, and truth is eternal. Even an Omnipotent power cannot make that a truth which was not a truth from all eternity. Such a power must be the essence, the plenitude of truth, and cannot do that which involves a contradiction. We need not present to your minds metaphysical truths. such as, that this power cannot make a circle a square, a thing to exist, and not exist at the same time, as we are dealing with real, actual objects, those which offer themselves to our senses.

The phenomenon of the phonograph, did not present itself in the year 1,800. *Then*, it was merely possible, *now* it is actual; and if there existed no sentient being upon whom the phenomenon could act, no intelligence, no mind to which the senses could convey the knowledge of its existence, nevertheless, it was possible to exist, To conceive of the actual existence of anything, keep in your minds the word *necessary*, we repeat "*necessary combinations*," and your reason will tell you, that it was not *absolutely necessary* for the world to exist. Like all finite mutable beings. the world is a contingent being, and never would have existed in the natural order, if the "necess-

ary combinations" had not taken place. Being possible, it does exist—the necessary combinations having taken place. Push the reasoning home, and you will find that it was *absolutely pos. possible* for the phonograph to have existed in actuality, before our world existed. It needed only the efficient cause to effect the "necessary combinations" for development.

There is a profound depth in this philosophy—"the necessary combinations." Notwithstanding the absolute necessity for the actual existence of all physical phenomena in nature, from an animalcule to a burning sun, had been resting upon this principle, viz: *the necessary combinations* of matter to produce them; that this principle had been known to man since his advent on the earth, and the whole fabric of science had been resting on it, yet, it was reserved for Mr. Spencer to apply this principle to Synthetic Philosophy, and his application of this principle, has brought possibilities within the mental and physical grasp of all mankind.

Since this application has been heralded over the world, hear Archimedes saying: "Give me whereon to rest my lever, and I will move the world." Hearken to Descartes telling Archimedes: "Give me matter and motion, and I can make a world," on which you can experiment. Peruse Mr. Darwin and learn, that with an animalcule fitted to survive through thousands of millions of generations, "Natural Selection will pick out with unerring skill such improvement and preserve it." Until when? Until the "necessary combinations take place" and produce a mammoth. Listen to Prof. Haeckel's proof how the necessary combination of a "slamming stable-door wrenching off a bull's tail, this bull ever afterwards producing calves without tails." Bow down your reason and accept the evidence of Prof. Vogt, that "the superior brains of the Englishman and the wealth of England are due to the combination of cats, mice, bees, clover, and beef." Listen to Prof. Huxley while he adds to these combinations, that of "old maids who keep and cherish cats." Stand in awe when Mr. Spencer tells you, that the "air-bladder in the fish," and ultimately our lungs, "were produced by the necessary combinations of a fish opening his mouth; the taking in of a bubble of air; the bubble lodging in the back of the mouth, and a slight difference in an alimentary canal." Then

ponder on Von Baer's discovery, that this "air-bladder produced in the fish a desire to take a walk on the land and climb trees," and Mr. Spencer afterward discovering that it did this "without any obvious reason." This is true; because there could certainly have been no obvious reason had there not existed the possibility for the necessary combinations to produce a bubble of air, a back of a mouth, an alimentary canal, an air-bladder, a desire, a walk, a tree, and *no* obvious reason. These, gentlemen, are but few of the proofs of the necessity for the materials and the necessary combinations in order to make a thing.

Listen to the mechanic saying: "Give me some steel and tin-foil and I can make a machine from which the voices of men who once lived, can be heard millions of years after they are dead." Ask him how? and he will reply: "Having the *materials*, I can make the *necessary combinations*."

At what stage of nature's manifold combinations of matter can the reason of man cry, halt!? None. The imagination in its weakness may moan and weep, and in its imbecility drivel out, "I cannot paint the picture," but reason lifts its proud head, and from the eyes of its god-like power there dart forth the rays of intelligence, while it utters: "I see no impossibility in them." Ask yourselves the questions: Could an animalcule or a world have existed in their present forms had not the materials, their own peculiar molecules of which they are composed, combined? or had there existed no power, no agent, to combine them?

Keeping in your minds what we have said, project your thoughts into futurity, and your reason will tell you, that it is possible for a piece of tin-foil to be so preserved that your voices can become audible when the pyramids shall have crumbled into dust; when the "New Zealander" shall find no "London-bridge whereon to sit, nor ruins of St. Paul to sketch."

Press on your thoughts to the time when the world shall have run her course; to when she will be dissipated into the attenuated matter out of which she arose. Follow on until a re-aggregation of the *materials*, the *necessary combinations* take place, and a new world is formed, upon whose surface there can, and may exist more wonderful combinations of matter than now exist on this. While the imagination halts, unable to follow,

reason marches boldly on, and, from its hill-top of true philosophy, is unable to see any impossibility in it.

While we are not discussing the question of possibilities in the metaphysical or the spiritual orders, but Prof. Credo claims that there is no absolute impossibility in what is known as miracles—such as the blind seeing, the lame walking, the raising of the dead, or the sun ceasing her motion. "The possibility of such phenomena, like all others, depending," as he says, "upon the power of the agent or cause." He claims, that, as the reason can see no impossibility for the existence of a power which can change, abrogate, suspend, or intervene in, what we call the laws of nature, it can also see no impossibility in the existence of such phenomena. The non-appearance of such a power is no proof of its non-existence. If the dogmas of religion, as held by Christian philosophers, contradict reason; if the reason can find impossibility in these dogmas; if they involve a contradiction, Christians would not be required to believe them, holding, as they do, that even an infinite power cannot do that which implies a contradiction.

Mr. Darwin's Extra Sense.

Young gentlemen, we have already shown you the possibility for some persons to possess an additional sense, yet unknown to themselves, not a keener, but an extra sense. Now, we have no doubt in our minds that Mr. Darwin possessed such. Whether it was born in him we known not. He may have conceived and become pregnant with it afterwards, because, in a few years after his trip on the "Beagle," he brought forth a litter of Book-pups, barking the proof of the possibility of an animalcule—some of which are so small as not to be seen under the microscope—evolving, transmuting, surviving, and naturally selecting until some of them reached the enormous visible proportions of an elephant, and a white one at that.

Now, the microscope has revealed to our sense of sight, that there are in one millionth part of one drop of your blood creatures eating one another, and this additional sense of Mr. Darwin's has been so sensibly affected by the phenomenon, as to enable him to perceive, that "hunger was evolved in order to induce animals to eat." Remember, gentlemen, it is only

through the senses that you can receive impressions by which you are enabled to perceive, understand, or *know*, as we say, that there exists any beings whatsoever; any mode, manner, qualities, or condition of things outside your individual selves; for, while you may feel the pangs of hunger yourselves, you can only *infer* that other beings feel the same. You do not *know* it, as you have not experienced that phenomenon as affecting others.

Therefore, as each entity can be informed only of what is outside itself through the evidence of its own senses, it must have been this additional sense of Mr. Darwin's which enabled him to perceive, not only the origin and sense of hunger in others, but, by the process of evolution and natural selection, how the sensations of an oyster may become so acute, and the bivalve be so perfected, as to become superior to a Leibnitz, a Newton, or a Self-existing philosopher. What a wonderful and useful acquisition, or gift, this additional sense has been to Mr. Darwin and the world! It has made such an impression on us, that we have not eaten an oyster since learning this fact, for fear we might be swallowing some future Plato.

This extra sense has also enabled Mr. Darwin, after having perceived we once had tails, how we lost them, or else he discovered it while either on or off the "Beagle," that those hairy fellows, from whom we descended, wore them off by friction, "sitting," as Wallace and Livingstone tell us, "on the ground holding their hands clasped over their heads to keep off the rain." But, as the direction of the hair on our forearms at that stage of our evolution, enabled the rain to run in on the skin, of course, those hairy fellows, to prevent this, went to work, when it did not rain, and rubbed the hair reversely, from which action of our intelligent ancestors, the hair on our forearms tends to converge towards the elbow, "which," as Mr. Darwin says:

"Offers a curious record of our former state. The hair on our forearms now, is of no use in throwing off the rain, nor in our present erect condition is it properly directed for this purpose."

Had Mr. Darwin not possessed this additional sense, we probably would have never known that it was one of nature's possibilities, which enabled the rooster to evolve his pretty feathers

to charm the hen, and his larger size and natural gaffs to whip the other roosters off the dung-hill. So you find, gentlemen, that some men and, no doubt more women, can perceive possibilities which to others seem impossibilities. Then where are your impossibilities now? Nowhere outside your minds. You are mere idealists, and it is from the want of an additional sense, that you think any of these things impossible.

When we come to "Natural Selection," we shall show you that Mr. Darwin did possess an additional sense, and also show you wherein he lacked the sense of being able to convey his proofs of these possibllities to the minds of those who can conceive only of their impossibility. "They will appear," as Mr. Darwin says, "monstrous to those who have not attended to the recent progress of natural history." Now, we claim to possess that particular sense which Mr. Darwin lacked, and shall show you, that all of his apparent impossibilities are possibilities; that nature had performed them all, long before she made a possible Darwin, "whose discoveries," Prof. Haeckel says, "rise higher than the discovery of gravity by Newton." So we shall rank Mr. Darwin, but still, not having evolved sufficient "natural history" hunger, we have no desire to eat any of Mr. Darwin's nor Prof. Haeckel's laurels. Worms, sponges, and hairy fellows, do not agree with our stomach, notwithstanding these gentlemen are descended from them.

Young gentlemen, getting back to your grandfathers, and admitting that they might have swallowed the steam-ship, the telegraph, telephone, rail-road; and had managed to have gotten down the white elephant, oyster and rooster, or even have tried the hairy fellow, yet, we have no doubt, that when they got him down as far as his tail, they would have given it up, hauled him out into the rain, and waited until he "frictioned it off."

Gentlemen, if it is a fact, and we know it is, that there are creatures in your blood, so small as to exist in one millionth part of one drop of it, what must be the infinitesimal size of a drop of their blood? You need not try to imagine it. It is too small to affect even the imagination, and would be like trying to imagine infinity. Had some scientific lunatic made that statement before the discovery of the microscope, mankind, in its univer-

sality, would have exclaimed, "Impossible!" So think a little before you say: "There are impossibilities in nature."

Supposing, and it is not only possible, but within range of the probable, that there will yet be discovered some instrument, or some means by which the senses will be so aided as to perceive that mysterious phenomenon in nature we call Life. According to Prof. Huxley, "man is a molecular machine, and life consists in molecular action," and according to Mr. Spencer, "life consists in the adjustment of internal relations to external relations." Therefore, as we have already seen, that there exists some hidden power in man to read and utter the thoughts of another, and, as these "relations" are but the action of molecules of matter, then, may not the eye be so aided as to see these actions of matter; note the moment the adjustment ceases, and perceive the phenomenon, *life*, issuing from the dying entity; and mayhap perceive its immortal existence around us, accompanying us, and being grieved or rendered happier by the actions of those whom they loved when in the visible present?

Note—that whatever constitutes life. It *is*. It is a some thing which we also call animation. It is not a *no thing*. It *is*. It exists. Our senses tell us that it now *is*, and now it is *not* resident in the entity. Life must always have existed somewhere. It *was*, and it must *be*. It is gone. Its manifestations have ceased to act on our senses, yet no more so than those living atoms in a globule of your blood did before our sense of sight was so aided as to enable us to perceive them. Once, the imagination of all mankind could not have conceived of these, but their reason could have found no impossibility in their existence, nor can we now find any impossibility for the non-annihilation of the phenomenon called Life. However much we philosophers may differ as to what life *is*, and where it came from, there is one thing certain to the evidence of whatever senses we do possess, that life *is*, and that it passes away from the perception of these senses, but not into nothing.

We do not wonder that some philosophers, in fact, we do not wonder at anything philosophers may imagine, have been driven to the conclusion, that all nature is one universal life; that death, in the sense which we use it, does not exist in nature.

When they find that the air we breathe, the water we drink,

and the more solid matter we consume is full of life; that diseases are but living germs which aggregate in an entity, we do not wonder that philosophers should come to the conclusion, that the molten-liquid fire is life, existing under its own peculiar form and nature.

Prof. Huxley tells us, that "life exists in creatures so small, that one drop of water could contain more of them than there are human beings on the earth." Prof. Clifford says, that "the world consists entirely of *mind-stuff*." Leibnitz, "of living appetite and knowledge-possessing monads." Prof. Haeckel tells us:

"All natural bodies are equally animated; the distinction which has been made between animate and inanimate bodies does not exist. When a stone falls to the earth, or, when in a solution of salt, crystals are formed, the phenomenon is neither more nor less a manifestation of *life*, than the growing plant, or the propogation of animals, or the activity of the senses, or the perception or formation of thought in man."

What do you think of that, gentlemen, for a philosophy? Rosmini asserts, that ''all nature is one universal life." The life of fire is contained in the giant oak, and lies hidden in the bosom of the coal. Why do these learned men think these things? Because their reason can see that the posssibility exists for all we see and know of to be living things, existing in their own way, unrecognizable, as yet, by our senses.

Let science continue to progress at the rate it has been doing, and who can tell what may not yet be known of nature's secrets. Impossibility in nature is only a word, having no meaning as applied to a reality. Until we know all the laws of matter, and of mind, we are not in a position to pronounce anything *impossible*,

Sir John Herschel and many other astronomers have not thought it impossible for the sun to be inhabited by living beings. Herschel says: "The sun is a most magnificent and habitable globe." Sir William Thompson thinks that life came on this earth by being brought to it upon meteors from some other planet. As intelligence can not exist without life, the great English thinker [in his own way of thinking], Mr. John Stuart Mill, says: "In some planet there might exist minds in which the sum of two and two might make five." And our

great American philosopher, Prof. John Fiske, in defending Mr. Mill, says:

"We might imagine a mode of existence different from our intelligence in which our numerical limitations would not be binding."

The fact is, as we have already stated, that the terms possibility and impossibility in nature, are mere words, like the word Nothing, which presents no meaning, and which, so far as can be conceived to the contrary, never can present any meaning. In conclusion, we think the only things that can be imagined or conceived of as impossible are, that nature cannot change the fundamental essence, nor annihilate one atom of herself.

Now, Prof. Credo, we shall be pleased to hear what you may have to say upon the proofs we have presented—*That with Nature there is nothing Impossible.*

Prof. Credo Differs from Prof. Jubal on Some Points as to the Possible and the Impossible.

Prof. Credo.—My young friends, we agree in much that Prof. Jubal has stated, particularly as to the universal testimony of mankind being of no value in proving possibilities or impossibilities. But we will endeavor to point out wherein he has failed to show, that no such condition as absolute impossibility exists in nature, or that it exists nowhere outside our minds.

We will first have a few words to say to Prof. Jubal and the Self-existence philosophers, as we intend to hold them down to the fundamental essence of their No-beginning premiss, and keep them down to the logical conclusions which must be deduced therefrom.

So, Prof. Jubal, when you philosophers commence by denying the existence of an intelligent First Cause for all the varied effects we see in nature; and basing your systems of philosophy upon the Self-existence of the Universe, which means, as Mr. Spencer, in his First Principles, says:

"It is clear that by *Self-existence* we especially mean an existence independent of any other, not produced by any other. In thus excluding the idea of an antecedent cause, we necessarily exclude the idea of *a beginning*. Self-existence, therefore, necessarily means an existence without a beginning." * * *

"The absolute commencement of life or anything, I distinctly deny."

We say, when you philosophers lay down this premiss, and for the purpose of enabling you to build up your various systems of philosophy, use the arguments of Christian philosophers, you are abandoning the foundation upon which rests your Philosophy.

We philosophers commence with the premiss.—The existence of an Intelligent First Cause which created the Universe, the world, and the creature in its origin or *cause*, and impressed on nature forces or laws, which, through the operation of natural causes, shall produce what we call natural effects. Our philosophy consists in an effort to discover from these effects what these natural causes may be. Therefore, when you come to talking about the possible *de potentia absoluta*, the *de potentia ordinata;* the Formal, Efficient, and Secondary *causes*, Force and its persistence, you are destroying your premiss, and your philosophy tumbles into a mass of inconsistency. Take that fearful, precious, cherished thing we have and fear to lose, Life. If uncaused, we cannot lose it. It eternally exists. It *is*, and, if death exists, it also must have existed eternally. If you deny a First Cause for life, you must also deny it for death, for it would require a cause as much to produce death, as to produce life.

If nature Self-existed, if there was No-beginning of anything —and there could not be without a cause—all your illustrations, Jubal, of no impossibility in nature, are nothing more than describing what *always was*. No thing can be the cause of its own causality. When we see an effect and trace it, as we think, to a cause, we cannot stop there; the reason demands a cause for this cause, and so on *ad infinitum* until we reach a primal cause of all mutable things. Should the reason find none, then, it must rest upon the foundation, that from all eternity there has never been a change in one atom; for without a cause, without an agent to cause change in, what you term the eternal Something—Matter, this Something would remain the same Something eternally. All the btg new words which you invent and use, are not large enough to cover up your inconsistency when attempting to account for effect, for change of that which did not have an antecedent cause.

Your great logician, Mr. John Stuart Mill, was driven to admit, that :

"The cause of every change is a prior change, and such it cannot but be, for if there were no new antecedent, there would be no new consequent. If the state of facts which brings the phenomenon into existence, had existed always, the effect also would have existsd always."

And this is true ; for the idea, the type of the universe, and all it contains, existed eternally in the mind of an intelligent First Cause. But Mr. Mill, finding that this reasoning would commit him, and compel him to admit an external agency, a First Cause, he finds it "necessary to look more closely into the matter," and says :

"For if it should tnrn out, that though all causes *mnst* have a beginning in time, there is in all of them a permanent element which had *no beginning*. This permanent element, although not sufficient *of itself* to cause anything, enters as a con-cause into all causation."

This, Jubal, is the corner you philosophers get yourselves into. You will not have an intelligent Cause, but you put up with a con-cause, which is not sufficient of itself to cause anythiug ; but when it "enters in," it becomes the "permanent element of all causation." And if this logic does not answer, then, to account for effects, you invite Mr. Spencer to enter Force, not as a "con-cause," bnt as a "mode." This Force, being also a permanent element which had No-beginning, when Mr. Spencer enters it in, it *begins* to do something, not to carry out any plan or mode of its own, but that of some other permanent, uncaused something—an "Unknowable Reality," which itself is unable to cause anything.

Jubal, we have always found in the writings of you philosophers, that you geuerally devote a sentence or two in stating, that there exists no intelligent First Cause, but a No-beginning of anything, and then a couple of pages showing, in what cause and effect consist. After which, you commence and build up a philosophical edifice composed entirely of causes and effects. Take out of Mr. Spencer's "Synthetic Philosophy" the discussion of causes and effects, and six pages will constitute his entire works. Take out causes and effects from Mr. Darwin's works, and two words—an animalecule *found*, and a link *missing*, will

comprise his labors. Take out of the voluminous works of Prof. Haeckel his causes, effects, dogmatism, and abuse of those who differ from him, and there would not be enough blank paper left upon which to write the names of those

"worthless rabble of so-called saints, the dignity of whose manhood has been hurt" [by the Prof. proving, that] "the Lancelet, or *Amphioxus*—a skull-less, brainless, and memberless worm, which has an oval mouth; a cilitated groove on the vertical side of its gill-pore; digests its food at the posterior end, and is a fish, is their blood relation."

Now, Jubal, after this little dish of reason, logic and humor, we will give you our opinion of your lecture. You have certainly proved, that the testimony of the universal experience of mankind, as to the possible or the impossible in nature, is valueless, but when, for the purpose of sustaining your argument, you quote Lamennais, that "perhaps there are beings so organized that their sensations are wholly opposed to ours, and what is *true* for us is *false* for them;" also quote John Stuart Mill, that "in some planet there might exist beings, in whose minds, the sum of two and two might make five;" and to sustain this, quote Prof. John Fiske, that "we might imagine a mode of existence different from our intelligence in which our numerical limitations would not be binding." We say, when you present these quotations, you are merely presenting the dreamings of these philosophers. You are stepping outside your premises, and in some sense entering a region which transcends nature, a region where exists eternal, immutable, necessary, truth, which existed before any individual, and when individuality in the finite order shall have disappeared, it will continue to exist, it will lose nothing.

Thus, if it were possible for an intelligence to exist which could conceive Nothing, it would still be impossible for it to conceive a square to be a circle; the diameters of a circle to be unequal, a thing to exist and not exist at the same time, or, that the sum of two ones, and two ones, can make five ones. The converse of these necessary and eternal truths is false; abstract all intelligence capable of perceiving these truths, they still remain truths.

We are willing to leave out of our argument, the eternal

reason, the eternal truth, origin of all truth—the Mind of God. Still, Truth, by its essence, is eternal. It is the plenitude, the essence of being, It *is*. No condition can exist that can affect this essence, to make it other than it is. All else which contradicts it is false. Destroy all intelligences, the whole universe, a circle would still be a circle, and the sum of two and two make but four.

These truths do not depend upon our ideas, for our ideas are not productive of things; all imaginable perceptions cannot change one iota of reality. The idea may express a thing, but does not make it. When we enunciate a necessary truth, we merely express it. The enunciation is true, because it expresses a truth, but the existence of the truth does not depend upon the enunciation.

Two circles of equal diameters are equal. If this truth depended in any way upon us, it would cease to be what it is, it would no longer be a *necessary*, but a *contingent* truth. These necessary truths, then, stand in need of no individual finite reason, this is found in an infinite being, and these truths were truths from all eternity.

If we are correct in our reasonings, Jubal, we would like to ask you, and these philosophers, upon what principle can the human reason base the idea that such different intelligences might exist, that "what is true for one is false for the other, and reciprocally," and how that which is *true* for the reason of one being, can be *false* for the reason of another?

Remember, Jubal, we are not denying the possibility for the existence of other beings whose intelligence transcends ours, but we deny the possibility of such beings being able to conceive a square to be a circle, or the sum of two and two to be other than four. And why not? Because it would contradict eternal, necessary truth. Suppose such intelligence to exist on some other planet, say, Saturn. Transfer this intelligence from Saturn to the Earth, would two and two which made *five* before it left that planet become but *four* during the transition? Destroy, annihilate this planet, Saturn, with this intelligence upon it, would two and two then become but *four?* Mr. Mill forgot, we suppose, that truth does not reside in any particular planet. Truth is infinite, immutable, of eternal duration, and not sub-

ject to his logic. That permanent element of his, "which had no-beginning, and not sufficient of itself to cause anything;" or even his "con-cause which entered in," and caused this element to cause something else, could not cause *four* of these somethings to become *five* somethings. And, when, in his examination of Sir William Hamilton's philosophy, in a fit of arrogance, Mr. Mill says:

"If I am informed that the world is ruled by a being whose attributes are infinite, but what they are we cannot learn, nor what are the principles of his government, except that the highest human morality, [according to Mr. Mills' standard.] does not sanction them. And when I am told that I must believe this, and at the same time call this being by names which express and affirm the highest human morality, I say in plain terms that I will not. Whatever power such being may have over me, there is one thing which he shall not do; he shall not compel me to worship him; and if such being can damn me, sentence me to Hell, to hell I will go."

So say we to Mr. Mill. You may damn us to hell, but we will not believe you when you say, that "there might exist intelligences in some other planet to whom the sum of two and two can make five." And as to old Lamennais, we will be doubly damned into a double hell sooner than believe that "what is *false* for one intelligence can be *true* for another."

You are wrong, Jubal, when you say, that "there exists no impossibility outside our minds." We admit that there is no intrinsical impossibility in nature forming sugar other than in cubical crystals; but it is impossible for her to form sugar globular, and have it cubical at the same time; impossible for her to make two surfaces without a medium, two ends of anything, without a middle. We also admit, that there is no intrinsical impossibility for the structure of man to be different from what it is; but of whatever form, man, as man, must be a rational animal, this is what constitutes the animal, man, not his structure. If he were not rational, he would not be a man, but something else.

According to Messrs. Darwin, Haeckel, Spencer and others, there was a state or condition of nature when there existed no man, no mind, no intelligence; when, what there was of nature, consisted of a material element, gas, and burning at that,

that man, mind, intelligence, etc., have been evolved; they were *not*, but now *are;* they have been evolved from something else, and from which has been produced that which did not previously exist in a universe where there was a No-beginning of anything.

With such a foundation for a philosophy, it can easily be imagined how something, which was not a circle, could be evolved into a circle, and how, on some other planet, a more advanced Evolution has produced intelligences which can make the sum of two and two equal five. Certainly, Jubal, such intelligences, such minds, that can imagine such possibilities, were not gathered from the under-side of Prof. Clifford's jelly-fish; neither can they have their "inner cohesions proportionate to their outer relations symbolized," which they must have, whether they exist on a planet, or in Mr. Spencer's "Synthetic Philosophy."

No, no, Jubal, all you philosophers will never shake the eternal rock of truth. It is not necessary for human reason to exist to have truth exist. Truth existed before human reason, and will continue to exist when hnman reason is blotted out. Possibilities and impossibilities exist in all relations, all conditions of existence, whether finite or infinite.

Prof. Jubal Continues His Lecture on the Death of This World and the Birth of a New World.

Prof. Jubal—Young gentlemen, we will now endeavor to show you in what way will come about, what may be termed tne Judgment Day of Evolution and of our present world; the last of this miserable little globule of matter in an infinite ocean of space. You must remember, that on the basis of the Nebular Theory, when the homogenous mass of primordial matter which filled up equally full, the whole space of the universe began its evolution; began to concentrate upon itself, and formed our Solar System; that when the suns, moons and planets were first evolved, they were much larger than they are at present.

We have already stated that Kant and Laplace tell us, that our entire solar system once consisted simply of the sun; that an immense ring was formed, which, like a dish when dropped on the floor, broke into fragments of different sizes, thus forming our celestial bodies. The fragment which composed our

present sun, was so large, that, as Mr. Babinet says, and Sir David Brewster approves of it:

"He filled the whole earth's orbit, and it took him 3,181 years to rotate; [think of that, gentlemen, think of the long days and nights at that period of evolution,] but by radiation he has been reduced in size. so that now he rotates in 25 days, 14 minutes and 8 seconds."

It was the same with our earth. It was much larger than it is at present, and we shall find that all the worlds will be getting smaller and smaller until they get down to an infinitesimal part of an element, the atom, from which they started. Then, old Democritus will be right, that "an atom may constitute a world." But they will begin another evolution, form new solar systems, and a new world. But you need not be alarmed, because Prof. Helmholtz, agreeing with M. Joule, says:

"If the sun reduces at its present rate of arrest of sensible motion, a contraction of one twenty millionth part, $\frac{1}{20,000,000}$ of his diameter, will only diminish him by something like one twentieth, $\frac{1}{20}$ in the lapse of the nexf million years; that our earth must inevitably fall into the sun."

Consequently, you need not be alarmed. It is a long time to wait, still, we would much like to be on hand at that time, in order to find out whether or not Prof. Helmholtz knew what he was talking about.

So far as we have gone, we flatter ourselves that we have made everything clear; for clearness is the *ne plus ultra* of the essence of all philosophical dissertations. We have been at the birth of this world; followed her through a portion of her career, and will now, as the fox-hunters say, "be in it at the death." We will then follow the ashes of her Dissolution until they re-aggregate and form a new world. If we could not do this, we should be no philosopher; or rather, no teacher of what philosophers tell us when they say: that in the unlimited cycles of ever-existing and never-ending time, the whole visible universe will Involve itself whence it started, to the negation point, when there were no bodies, no motion, no distance, but an undifferentiated Something, and will again commence evolving. That it is within the power of the present limited and, as yet, unmatured mind of man to cognize; that it is thinkable; that we have, upon scientific grounds, every reason to believe that the

future Evolution of primordial matter may, and, no doubt, will evolve a greater, nobler, better constructed, and more perfect visible universe; one more in accordance with what scientific minds know that it could be. Also, that on the new worlds to come, beings unlike ourselves may be evolved, who may be able to think the unthinkable and know the unknowable.

We need not stop here to explain to you the uncaused causes which philosophers tell us will bring about the death of this, and the birth of a new world; because we have already shown you from a No-beginning premiss that there is no such thing as *cause* in nature. Neither need we repeat, that we philosophers have adopted the Self-existence theory for the purpose of showing that there is no necessity for a maker to exist prior to that which is made, even if it made itself; because, as non-existence is an impossibility, and as something cannot come from nothing, except by Creation, we, therefore, to avoid the necessity of an antecedent for a consequent, have settled on a theory of a No-beginning of anything. What else could we do? We could not, with our "advanced intelligence," admit the "Hebrew Myth," the "Fable of Creation." So, to get a consequent from no antecedent, we have adopted Evolution as a "mode" with which to evolve the primal materials and produce the worlds. With the same materials we will form a new world, and, as Mr. Spencer says: "In this way." But first as to the death of this one, he says:

"The process of Dissolution, which forms the complement of Evolution, will inevitably undo what Evolution has done. The Solar System is a moving equilibrium, which is destined to finally be dissipated into the attenuated matter out of which it arose." * * * "Our present Solar System is only the product of endless cycles of previous evolutions and dissolutions of formal differentiations." * * * "Motion as well as Matter being fixed in quantity, the changes in the distribution of matter which motion effects, coming to a limit, in whichever direction it comes, the indestructable motion necessitates a *reverse* distribution; and the arrival of the limit of this vast Rythm, brings about the conditions under which a *counter* movement commences."

Thus we find that this "counter movement," this "reverse" action of motion affecting matter, will be done by Involution, and that which will produce a reversed new world will be done

by a new Evolution. New laws will come into existence, and all the principles which now exists in nature will be *reversed.* Consequently, the essence of Contradiction will be that of Unanimity; and things will be and not be in the same place at the same time. Philosophy will then be a science with which to demonstrate actual truths, and the truth of a thing will be proved by the positive evidence of its falsity.

Prof. Jubal takes Miss Nature to task for her Intention to Reverse Herself.

Gentlemen, before showing you the effects which will be produced by this reversed action of Motion on Matter, and the existence of a new Nature, we wish to say, that since our first acquaintance with the present Miss Nature, we have always had great respect and admiration for her, and have loved her and her ways; particularly since finding that she, like every other female, will have her own way. We are, therefore, satisfied that if she makes up her mind to go the way Mr. Spencer says she is going, there is no use in our trying to prevent her. Yet, he might be mistaken. It is possible she may be unable to accomplish so great a change. But this is not probable, as it may be done by some of her non-existent and impossible laws. Should she not succeed, we are safe. But should she make the effort, and succeed in equilibriumizing, and then dissipating us into the attenuated matter out of which we arose, thus reversing: "Whatever Is always Was," and destroying our logical conclusions, we think she ought to be ashamed of herself.

Still, if she has found out that she made a mistake the last time she evoluted, and is merely going to correct herself, why then, all right; or, if she is going to do this merely for the purpose of bothering future philosophers, again, all right; but, we do say: that, if after all the trouble we present philosophers have had to learn Miss Nature's laws, and have become philosophically certain that "she is an illusion;" "a form of thought;" "an aggregation of simple elements of matter;" "an unextended mass of mathematical points;" "a fortuitous combination of atoms;" "a concrete, built up of various physical and mental relations;" "mere centres of Force," and that her "space, matter, and motion, are either built up *of*, or abstracted *from*, ex-

periences of Force;" that she "made herself;" "Self-existed" herself, or that she was "created by an external agent." If, after all this, she is going to undifferentiate, attenuate, homogeneously non-exist; contradict all our hypotheses, all our dogmatical certainties, then, we say, that whatever she is, or wherever she came from, if she does this, she is not the natural young lady we took her to be. She is nothing more than a secretive, deceiving, self-willed jade. But still, after all, being a she, she has the natural right to change her mind as often as she pleases, and we are not going to ask her not to do so, as it would be useless, she would not be natural if she did.

Still again, if she has made up her mind to reverse all things, and is going to make the future women *not* change their minds nor have the last word, it is the duty of we philosophers to find this out, in addition to the other singular and curious things which she will bring about by her *reversal*. Therefore, we will endeavor to show you, young gentlemen, just what will come about.

As we have already stated, it will not, for this purpose, be necessary to go back with her to her condition of attenuated matter, nor follow that Something which is Everything, as it was before it formed our present System, until it makes a new nature and a new world, unless, as we proceed, we should find that this reversal makes Everything, Nothing; then, in this case, Nothing would be Everything, and we should be compelled to go into physics, in order to show you, that it would then require Something to come along and, as we may say, get into this Nothing, before Miss Nature could make a new world. But in our present condition, the inability of our minds to grasp the idea of Nothing, this could not well occur. Of course, we can cognize the principle of contradiction, because we can cognize the opposite of a reversal; but the difficulty would be, that where there is no body, there can be no space; no place for Something to get into; for, as Descartes says:

"The essence of a body is in extension. Where there is no body there can be no space; and consequently a vacuum is impossible."

But supposing we could imagine a space or place where nothing is—an empty sphere; the space within it pure Nothing;

and a body *could* enter this sphere. Why then, this body would itself be, *ipso facto*, Nothing. The reason why a body can not enter this supposed place is, that there can be no distance, no motion. Distance implies a medium between objects. Motion can neither exist nor be perceived without a distance passed over; therefore, as the distance is nothing, there can be no motion. Thus, we find, that even distance and motion are *some* things, not *no* things; for, in the absence of bodies, they do not exist.

Therefore, we shall never be able to conceive or imagine what Nothing is, until we can imagine that a thing can exist and not exist at the same time; or *be* before it *was*. But all this is metaphysical, and we are not discussing metaphysics now.

So, we will take it for granted, as all of us philosophers do in such matters, and conclude that the reverse action of the different compounds of matter will give rise to new relations; and that the "complexity of the counter movement," will bring about a new order of things, thus producing novel effects. So, when the new world and everything in and on it is reversed, then instead of her being round, she will be square, and her circumference will be ascertained by finding the square of the distance. Instead of turning on her axis, her axis will turn on her. She will take her north-pole down south, and the monkeys will, then, have to gather their cocoanuts off the ice-bergs. The milk being then on the outside of the cocoanuts, will save the she monkeys the trouble of dropping it in, and, like the Chinamen. their tails will be on the other end—so instead of their wearing them off by friction, they will wear them on by cohesion.

The sun, then, will come up in the West, but all the shine will be taken out of him, and his heart will be as cold as that of a land-grabber. Now, he rays' a good deal of *lux;* but he will then, not be able to rays enough to keep himself out of the way of the comets, which will all have stopped travelling, and have their heads where their tails ought to be.

Instead of the moon shedding the light, the light will shed the moon, and she will have to give up the contract of taking care of the tides. She will not be looney any more. going around, like the tippler, spending all her "halves and quarters," getting "horns" before she gets "full." She will then have some sense.

The storm will then blow up the wind, and he ought to be "blowed" up sometimes, for he does not behave himself very well under our present order of things. The rain will then, drop up, as up will be down. You will then, go to bed. or, rather, the bed will come to you in the morning, that is, if, from some weakness in the new laws, your present habits should not be reversed, And when you stay at home travelling. and get to the Lakes of Killarney, you will find yourself in Hong Kong.

This reverse action of the molecules will, then, evolve a small piece of millennium-stuff. The doctors will agree, the lawyers refuse a fee, and not practice at the bar round the corner. Justice will have the bandage off her eyes, thus enabling her to see, at least sometimes, to whom the things belong. In regard to doing as you wish to be done by, the eye teeth of doing as you please about it, will be cut. People will mind their own businesss, and, like most mankind, we philosophers have some common-sense, except old Skepticus, for then, he will believe every thing, and thus become a bigger fool than he was when he believed nothiug. We forgot to say in regard to the doctors, that, then, there will be no doctors as the people, out of spite, will die without their assistance, because there will be no dying, and "to be or not to be, that is the question," will be answered. *Crux philosophôrum*—the puzzle of philosophers.

In this new Jerusalem, we shall know everything. In this miserable, ill-constructed, ill-governed, one-horse, dirty abortion of a world, we are Agnostics, and know nothing. We cannot even square the circle nor solve the problem. If A has nothing and B has nothing, to whom do the things belong, so that a dividend might be declared? But we shall then know, that they belong to the first man who comes along last; and he that hath nothing, that which he hath will be taken away from him, by the last man who comes along first; because he will be there before he gets there. To enable him to carry off the no-things, he will be a fish-jelly; and contrary to Prof. Clifford's film, his mind will form on his upper side, and Mr. Spencer's speck of jelly will be reversed into "being at once," no hands, no mouth, no intestines, no skin, no lungs, and doubtless too, no pockets.

One day, while we were explaining to Prof. Credo, how in the reversed world, the sum of two and two will make five; that

twice five will be the fraction, and twice the fraction will be nothing, or zero; that the multiple will be the subtract, and the subtract be the addition, we noticed Uncle Jeff who, under pretense of driving the flies out of the study, was listening to the conversation, and the Professor observing him smiling, said to him: "Uncle Jeff! What do you think of that? Do you think you could twist 2 bits and 2 bits so as to make 5 bits out of them?"

"Oh yas, massa!" says Jeff, "we sees how dat kin be done ve'y easy, en dis way. Sposin' you fine out w'en you gits ter de camp-meetin,' dat you's got 5 bits in yo' pocket, en shood feel leetle mite skeery et wat de preacher sez 'bout de Pit, en you should gib 4 er yo' 5 bits ter der Lor', you'll find out dat you makes by de op'ration; 'kaze, w'en you 'stract de 4 bits you gib ter de Lor' fum de 5 bits, den, 'stead leben on'y one bit en yo' pocket, you fine' dat de Lor's 'ddition hab bin ter wurk, en put de 4 bits wat you gabe de Lor' on ter der 5 bits you fotch 'long in yo' pocket, so, den you's got 9 bits. Den de Gospel tex,' dat "de riteshus shell mult'ply many fole'" takes a holt, en you cums 'way fum de camp-meetin' wid 18 shill'n in yo' pocket; 'sides layin' up yo' treasur' ob 4 bits whar de mauf and de rus' can't connec,' ner de tieves broke open de do.' En morn'n dat, so far ez you's gone, you euchers de debil on dat deal. Yit, massa, dat mout'nt sabe de game wid sum folks wat we kno's, en mout'nt keep'em outer de pit, 'kazė, ef all de chick'ns in de world doant die befo' de nex' deal, dey mout run de chances in the chick'n game, take it up, en get eucher'd; den 'twill be de debils nex' deal wid only one ter go, en ef he makes dat one, dey'll git down in de pit, en be out 4 bits beside.'"

The professor thought that Uncle Jeff understood how two and two could make five, about as well as Mr. Mill or Prof. Fiske. We then explained to the Professor, that people need not bother themselves about squaring the circle or their accounts, as among them, then, agreements will be all on the "square." But, the Professor said; "he was doubtful if the reversal will be powerful enough to affect Government-contractors and marriage vows, so as to compel the parties to carry these out on the 'square.' But he could understand how the infinitesimal calculus will, then, not have to use the multiple of the unit, but

will synthetically proceed, without the notion of a limit, to quadruple the concrete into the continuity of unlimited manifoldness, or A number-one, which is the natural number with all sensible people, and which will save a deal of slate-pencil."

What we have shown you, gentlemen, are but few of the novel effects which will be brought about by the reversal. Things will be as naturally real then, as they are now philosophically ideal. Therefore, when those non-existent and impossible laws get into operation, we can understand how old "Force" will not be needed to carry them out. He will be used up, and become as weak in the legs as a "Municipal Police-Star."

In accordance with our present law of Evolution, Mr, Darwin tells us, that all living organisms have been evolved. He says:

"Man [Prof. Haeckel says—body, soul and spirit] has descended from a hairy quadruped furnished with a tail, canine teeth, wagging ears, and no doubt, was arboreal in his habits." Also, that "man is an offshoot from the old world monkeys. Some anthropomorphous ape first gave birth to man."

If this be so, then, in the reverse state of things, it must follow, that the big hairy fellow will be descended from the man, tail and all. And the reason why he will not then climb the trees, will be, because the trees will climb him, so as to enable the buzzards to roost in the whales, and the whales to roost in the trees. Instead of the molecules evolving the elephant, the elephant will evolve the molecules; besides, he will, then, bite the flea, and the flea will bite an infinitesimal part of an element, the atom. Prof. Clifford's jelly-fish will have no belly on which to film, and this will be, as Ah Foo says, "belly bad."

It will be difficult to understand where you will find the fox then. We are inclined to think, that the molecules will have to go back and take another twist before they can get the goose to catch the fox, even leaving the coon out of the question. Just how this is going to be done, we cannot logically formulate. Because, should we put the fox F, for the major, the goose G, for the minor, we get the coon C, as the consequent, and this will not answer, for the coon is as cunning as the fox, and thus the goose falls into the vicious circle of the two predicates, which brings the proposition to a *reductio ad absurdum*. But, if we form

the syllogism plurally, and make it five handed, we might get the correct conclusion. Thus, if we double the first and second terms by adding the opossum O to the fox F, in the major, and the persimmon P to the coon C, in the minor, we shall get one consequent at any rate, and pretty near the right one, as the natural conclusion will be, that the goose will eat the fox, the persimmon the opossum, and, as there will then be nothing left for the coon to eat, he will, like the snake when he got his tail in his mouth and thought he was swallowing another snake, eat himself.

As to the sheep, what these will do, will be perfectly natural under the new conditions, and easily understood. They will start right out into the desert-woods, roaring till the ground shakes, seeking what they may devour, and Queen Victoria had, then, better keep her lion and unicorn at home, if she does not want these sheep to chew up the whole British Empire, upon which the sun will, then, always set. These sheep will be none of your scared mutton then. They will be the Stonewall Jackson's of the forest, and will not have to chew the cud, as the cud will chew them.

Prof. Jubal's Journey Over the World, in Order to Discover if There Ever Existed a People, a Place, or a Time, Where and When the Women Have Not Done all the Talking, and had the Last Word.

There is one thing which this reversal will bring about, which we hope, young gentlemen, you will all live to enjoy. One which will make you jump up, crack your heels together, bless the Lord for the new Jerusalem, and the molecules for revolving the other way. Yet, when we come to analyze it and get down to the essence of the law of possibilities, we are not so certain about it. So, if any of you gentlemen are in the bear-pen, you had better, when you happen to think about it, think pretty low down; because, if a certain female somebody should accidently be around at the time, you might have to rub your head and be sensibly impressed with the conviction that a "Municipal Police Star" has been using his rolling-pin; and this is, that the women will be the men; and, of course, will then have the first word

only. But how to solve the philosophical problem, in order to find out in what way the molecules can possibly be evolved so as to deprive the women of the middle and last words also, is a difficulty. Now, we do not believe that a Self-made, or even an Agnostic philosopher, and he does not pretend to know anything but appearances, can solve that problem. Yet, while the solution is unthinkable, and we know impossible under our present system, that is, so far as the experience of some of us has been, still, some philosophers have tried and come very near getting the correct answer. But then they were compelled to lay aside possibilities and probabilities, and try it on purely philosophical grounds. They say, that generation of heat in the cranial cavity, and persistence in the *lingua*, will bring about novel effects. But let us hear Mr. Spencer himself solve a portion of this conundrum. We have not the volume of his works at hand, but what he says is about this much :

Whenever atoms approach each other within certain distances, they generate a certain amount of heat ; and, as one of the qualities of heat is to rise, it, of course, acts upon and intensifies the motions of the molecules composing the highest objects. For example : When the molecules forming the brain of man have been thus affected, a more rapid motion among them will thereby be produced, and the man or woman will become, what is commonly called by the vulgar, "hot-headed." Then, following out the known laws of atomic repulsion, the heated molecules, owing to the force generated by these novel relations, will descend to a common centre, which centre may be termed Loquacious-gravity. In other words, the heated molecules of the brain being thus repelled, will oscillate and run along lines of least resistance until they reach an organ composed of molecules with which they have an affinity, thus causing a vibratory motion in such organ, proportionate to the intensity of the cause which originally produced the heat.

Should the organ in which the heated molecules have produced vibratory motion be in a cavity, the oscillations of this organ will be extremely rapid, producing, in proportion to its vocabulary acquirements, discordant tones, generally of a sharp character and of a high pitch in the scale. For instance : If the cavity and organ be like the mouth and tongue of a man or

woman, the molecular action of this organ can be decreased only by force of the will, absence of exciting cause, or the wishes of the possessor of the organ being gratified. So far as science has been able to discover, the only state of existence in which the *lingual* organ ceases to oscillate is that of sleep, yet, some matrimonial scientists and philosophers doubt this.

Now, if this be so, and Mr. Spencer has made no mistake about it, which he would not be apt to do in a case of this kind, where his peace by day and rest by night are concerned, we do not see in what way the molecules can possibly be evolved so as to keep the women out of their natural rights. Besides, there are other things to be taken into consideration before this can be done. There is the law of contradiction; force of the will and the do-as-you-please elements in their nature; all of which would first have to be annihilated. For our part, we have, with a self-abnegation, tried very hard to find out how it can be done. We have read Aristotle and John Stuart Mill backward, forward, and upside down, but it cannot be done with their logic. We can get the major premiss and the correct conclusion; but, do what we will, soothe, coax, caress or do nothing with the female syllogism, we find it impossible to make these two terms agree with the minor premiss. It always results in the middle term wagging the *lingual* organ at both ends.

We have not been satisfied, young gentlemen, in trying to find out logically, why the women do all the talking and have the last word; but, have studied Philology and every other Ology. We have exhausted Psychology, Metaphysics, and as to Nature's laws, we are as familiar with these as Mr. Spencer is with the mazy nexus of phenomena, even more so, and yet, all we have learned from reading the book of nature is, that Force has generated Motion, which in the language of the street organ-grinders means *motio*, or action, movement, unrest. In the slang of the cultivated North American, it means "let her rip," "keep the ball a rolling." In the "Faderland," they say, "*Freuen Zunge ist niemals still*," which interpreted, is, you never can got de behind vord mit de voomans. While, in old Irish, as spoken by those of ancient fame, when "Malachi wore the collar of gold, which he won from the proud invader," it is *cooleen dath tigin thu*, and means, women niver houlds their

whist. In the elegant patois of the Parisian Gaul, it is *flux de bouche*, and means, ze grandé cataract of ze mouth. Should we get down into a lower stratum, to the vulgar, as Mr. Spencer terms them, to mechanics, *motio* means, the perpetual motion. And should we get still lower down, among the doctors, into Pathology, it means, the colloquialized flux. Bnt should we continue descending and get among the lawyers, we shall reach a depth to which no other human beings have ever reached, for no word has yet been coined by the human brain with which to convey, much less express, an idea of the rapidity of the oscillations and irresponsible vibrations of this organ, when in a legal cavity. Besides learning all this, we have found that even the birds have a word in their language for this kind of an organ. You can find it under the head of Ornithology, and it means Poll-parrot.

Notwithstanding the fact that Force has generated motion, and that all speaking organisms have given a name to this motion of the *lingual* organ. it does not account for its accelerated motion when in a female cavity. It does not get far enough to back, back to an ultimate cause. As we do not know what first impelled the atoms in Kant's gas-filled universe, so in the word-filled cavity, we not only do not know what first gave impulse, but what, at certain times, causes the increased action of the *lingual* organ. It is useless to seek for its origin in the self-made or the self-existence theories, as these give us no cause of anything. But whatever may be the primal, we have seldom found any formal, secondary, or even justifiable cause for its constant oscillations. It is too wonderful, too active a phenomenon to come from nothing. It certainly cannot be Mr. Mills' "con-cause which entered in," for nothing can enter in when the *lingua* is in action. It could not have lain potential in primordial matter, for if so, it would have had these molecules aggregating, and those vortex-rings linking and knotting long before they did. It would have ordered Mr. Force to go to work, and seen to it that he did so, long before Mr. Spencer's womb of things got pregnant; and the music of the spheres would have been heard chilliads ot ages before morning stars sang together whatever hymn they had been practicing singly.

The origin of this accelerated motion of the *lingual* organ in the

female is beyond human conception. In its efforts to think it out, the mind reels and the reason becomes paralytic. The nearest we can come to accounting for the phenomenon, is upon our logical conclusion, that it *is* because it always *was*, and will forever *be*. To attempt to comprehend, or even philosophize upon it, like Archimedes, we have no place whereon to rest our philosophical lever. But still, after all, the cause and reason may be the same which the possessors of the peculiarity of this organ give for every cause and reason. "It *is* so, *because* it is so."

Young gentlemen, it brings the salt-rash out all over us, when we think and speak of what we have suffered; what we have gone through in our efforts to discover the cause of this tremendous phenomenon. We have mounted on the eternal pinions of Fancy; sailed through the etherial regions of Thought; digged and delved in the garden of Conception and gathered the flowers of Imagination, but they have withered in our grasp. We have climbed the moutains of Discovery, and waited on the hill-tops of Hope, to catch the first faint glimmering of light that should dawn on human understanding. We have seen that glorious orb, the source of life and light—the birth-place of Plato, Newton and Raphael—rising in his majesty; and while being bathed in the ocean of his beams have watched, with perspiring anxiety, his course as he vaulted to his zenith in the blue concave heaven, in hope of catching one ray of light which would guide us to the origin of this misery-producing phenomenon.

Still hoping, we have turned and watched this god of day descend, until his last rays have lingered and bathed our feet in twilight. And when Night has thrown her ebon-mantle o'er the scene, with unattained desire, we have gone dejected to our home. We have sat in that home, and in the agony of our soul, have groaned for Light! and been answered by the pot-lid. We have burned the midnight kerosene, and, while poring o'er lost books, have heard a stilly voice issue forth from out our inner chamber, and interrupt the current of our thoughts, with the well remembered, oft repeated words: "Come to bed! *you* Jubal!!"

We have digged deep down into the historical-strata, and sought for fossils. We have read o'er and o'er those lost Greek books, which, did we not already possess, would have thrown the

Greek alphabet an infinite number of times to procure, but found no fossils, nor anything in those books upon the subject. Some of the wisest of these Greeks do say, that it is a "*Lusus naturae.*" Old Skepticus treats of it on two sheepskins, and then says, "I don't believe it."

When after a more than usual burst of the lingual-storm has poured its clamorous torrents on our devoted head, and we have escaped its fury by taking refuge, to our only solace, the comforts of a neighboring grocery, or buried ourselves in our library among our books, we have often thought, that, with our experience, we should like to go back and begin life over again. But from the knowledge we have gained from this experience of the weakness of nature; of the inanition of the will; the utter loss of self-control, and the driveling imbecility which seizes poor human nature at a certain age, when within hail of a female biped, we have trembled at the risk; abandoned the desire; opened the doors of expectation, and are now impatient, yea! even joyous in the hope, that, as an heir to mortality, we may soon come iuto possession of our six feet of Cemetery real-estate, where we can revel in our wealth of peace, and listen to the silent worm, as he gnaws these poor ears which have so much suffered.

So, young gentlemen, you must not be surprised at seeing us wiping the salty-drops of disappointment from our troubled brow. Still we did not give it up even with all this. Being a philosopher, and having a particular fondness for natural and historical research, and knowing that any organ in the human organization which has the first, middle, and last of anything, must be an effect of some cause, we were determined to find this cause, even should it take our whole summer's vacation.

A true philosopher never gives up. He cannot give up after starting in. Never give up! is the true road to success. He who cries "Enough!" is always whipped. Many a bottom dog has won the fight by holding on. So philosophers never give up, so long as there is an "If so be," a theory or an hyphothesis to take for granted. Some natural philosophers have spent their whole lives watching spiders, in order to ascertain why some women spiders eat their lovers; and others, the ants, to learn

why the husband ant always dies, and his wife drops her wedding dress—her wings—the first day of their honey-moon.

So, during one of our vacations, we went off to Egypt, and called on Old Cheops and asked him about the matter. We found him neither mum nor mummied, for he talked to us in a flow of language like the flowing waters of his own Nile, during the reign of the dog-star. He kindly looked over all the hieroglyphics on his pyramids; asked the Sphinx; opened the mummy of Sesostris, but could learn nothing. We told him, that the cause must exist somewhere in nature; that there must exist some entity, animate or inanimate, which possesses the key that can unlock the door of this secrect.

Cheops said: "Then why do you not try the being who possess this organ in which the effects of such extreme oscillations are produced, they being more than likely to know the cause?" So he sent a eunuch for Cleopatra. When she came into his chamber, he said. "Cleo! my dear; this gentleman is Prof. Jubal, a barbarian, who has come from the Barbary coast in search of knowledge. He is one of a race of men who are not satisfied with some contrivances in nature, and think that they could have improved upon her works. Some of them have already suggested improvements, and one, a Mr. Spencer, Prof. Jubal tells me, has called in question, the wisdom of Osiris in 'adopting an archetypal type for all creatures, and then amusing himself in building up a variety of living forms without departing from the original type.' These men are called Philosophers, and Cleo! this philosopher is endeavoring to discover causes. He desires to find both the cause and the reason, if there be any in nature, why women *do all the talking, and always have the last word.*"

But the way she loquaciously waltzed into Old Cheops, *ze cataract of ze flux de bouche* is not aufficiently strong to express it. If Cheops did not get the *Loquax* cataract, under the Falls, then, he never did. If we had not been used to this kind of a shower; if we had never been in the seething, boiling foam of lingua's rushing waters, we should have been petrified into a mummy. If Mark Anthony ever got a snooze when she was around, he must have chewed some henbane.

Still, she was a likely looking girl; and when we saw her lying out in that boat with nothing on her, as you have seen represented in pictures, and her Etheopian maids fanning off the flies, we tell you what, young gentlemen, it brought to our mind the recollection of a time when our Cleopatra used to fan the flies off of us. But for these many long years we have had to fly around ourselves to keep out of the way of the knocker down of all arguments, the pot-lid. There is no use in our talking or grieving about it now. If we get in, we have to stay in; and we have no right to find fault with the Lord, because the devil sneaked around and got the best of the original woman. It cannot be helped now; it is too late to mend the matter, and it will be your own faults if you hitch yourselves to a *wag*on with that sort of a tongue. You had better stay single bipeds; then you can stop down at the grocery as long as the keeper will let you, and when you have to go home, you can drop into your single-buggy beds and sleep the sleep of the just.

Still, we did not give the matter up even with old Cheops. We were burning with hope, desire, and determination, and nothing but the waters of discovery could quench the fire. We thought that where there lived the most people, the more would be known; so we crossed through Tartary, over to China; called upon the Emperor, Fang Foo Chow, and stated the object of our visit. But the answer to our inquiry was, "Me no sabe woman." We then went among the Chinese people; but the answer was the same: "Me no sabe clause, but me sabe 'fects; Chinee woman allee same Mellican woman; too muchee talkee; go bed, talkee, talkee; go sleep, talkee; get up, talkee, talkee allee time. One fliend come see, make callee, kissee, kissee, talkee, talkee; fliend go 'way, kissee, kissee, talkee, talkee, bofe want las' word, no can get. Bym-bye woman die—hop go mission—no more talkee; belly good!"

Not discouraged, we went right off to India, the cradle of the human race, and consulted the Hindus; examined the Vedas; and these are so pre-historic; they run so far back in time, that, as Blackstone says: "the memory of man runneth not to the contrary," but all the light we could get on the subject was a tradition which these Hindoos had among them, that it was a judgment on the men, because they were not satisfied with what

Khoda-uah, their Lord, had done for them, and had tried to improve on the work of his hands. The tradition runs thus:

"Khoda-uah, their Lord, being mindful for his people, and concerned for their peace in life, when he made woman for man, for his help-mate, and to take care of matters around the house, he did not put any tongues in the mouths of the women. So the men tried to put sheep and lambs tongues into the women's mouths, but they could not make them fit; could get them to wag only at one end. So the men prayed to the Lord to make tongues which would fit the women's jaws, that they may hum to the baby.

"The Lord hearkened to the voice of their prayer, and sent the angel Jewsarp down to put tongues in the mouths of the women, but, as the Lord had commanded, the angel, after fixing them in the women's jaws, tied them underneath with a string so that they could not wag and pester the men.

"Then the men prayed to the Lord again; dropped ashes on their heads; walked under the Juggernaut; threw themselves on the ground before the Lord and begged of him to send the angel Cissorcumcut, that he may cut the knot, and loosen the string under the women's tongues.

"But the Lord, he was angry with his people, that they should ask him for their evil, and said in his wrath, 'I, the Lord! will do this thing which they ask me; but in their days and nights of tribulation, when the *loquaxl* storm shall come upon them, when the elements of discord shall pour down their never-ending clamor; when the oscillations of the word-wagger shall never cease, and the men shall weary of the Jaw opera, I, the Lord, will turn my deaf ear toward them, that I hear not their complaint, but in my wrath, will let them die the death of 'Lingo,' because they asked me this thing.'"

But we could find nothing of this tradition in their Veda bibles, which they call their books, so it could only have been something that these Hindoo men imagined in their misery. Thus, after all our trouble and labor in research, we could find no people, no place, no time, where and when the women did not do all the talking, and have the last word. Consequently, that old Greek philosopher must have been right when he said, that it is a *Lusus naturæ*, affecting every woman.

There is an old Greek maxim, that "there is no rule without an exception;" but the maxim, in this case, comes very near slipping up, and would have done so, had not nature, who never fails, never makes a mistake, made a fundamental law, the law of Contradiction—that everything must have its opposite. Therefore, she was compelled to do something to sustain the rule, and the universality of this law. So, among all the living things which get married, nature has made but one female that holds her tongue, and this one we found in one of those old Greek books. It is the Cicada of the order *homoptera.*

The Grecian poet, Xenarchus whose wife had a loquacious stem-winder, says: "Happy the *cicada* live, since they have voiceless wives." And this, young gentlemen, is the only instance yet found in nature. But we are glad to know that there is even one, as it goes to prove, that there has existed some molecules from No-beginning, which can aggregate and form one female tongue that cannot wag after getting into the jawing cavity.

Neither has nature failed in giving the female the last word, for Baron Von Humboldt tells us: "I saw in South America, a female parrot, the only living thing which could speak the language of a lost tribe of men." So, of course, this she-parrot had the last word on that tribe of men. It must be true, because the Baron says so; and in proof of this, the Baron, being able to *deutsch sprechen*, was necessarily compelled to understand what the parrot was talking about. And, although in this case, when the Baron asked the parrot about a tribe of men who, with their language, were lost, succeeded in having the first word, still, the she-parrot, when he answered him, got in the last one on the Baron.

Young gentlemen, in addition to doing all that we have related to you of our efforts to discover the ultimate cause of this phenomenon, we have had over 40 years experience of its effects upon ourselves. You will be most likely to think that a man, and particularly a philosopher, ought to have been able to discover the cause of almost anything when he has been experiencing its effects for 40 years, from early dawn to dewey eve, and through the silent watches of the night has yawned, while *Lusus* kept a-going. Yet, for all this, we have failed.

But we have our own theory on the subject, one which deserves the consideration of those who are desirous of increasing the peace and happiness of their fellow creatures, and, so far as in them lie, to lessen the ills the flesh of man is heir to. We do not speak of the spirit; man generally losses that in about three weeks after he gets in the steel-trap, but we speak of the covering of the bones.

Forty years ago, we weighed 180 pounds, good weight, and when we weighed, only last week, we could not bring down 42½ on the hay-scales; besides, we had our boots on, a jack-knife and three nickles in our pocket. Now this is a good deal for a man to lose in any cause, even if he does love his country. But we have stood it this long, and have 42½ pounds left; and all we care for now in this world is, to find out how long these 42½ pounds will last. We suppose, that when we get down to the ½ pound, we shall get let up on; yet, we do not know. Exhaustion is not an attribute of this wonderful and terrifying organ. We have become satisfied that there is nothing in this universe, nor on this miserable earth, that will ever be able to stop the disintegration of our molecules, so as to prevent us from losing, at least, 42 more pounds.

We are related on the "Toots" side of the house, to "Susan Nipper," who was a friend to Prof. "Bunsby," and, therefore, are not one of the giving up kind. When we went a fishing, we put our whole soul into it; but we did not go for bag-pipes. We baited our hook with the right kind of soft, insinuating bait, to catch what we went after; and the first cupidical bite we got, we hauled in the biter, and imagined we had caught an angelic sun-fish; but, in less than three weeks, this bipedal-fish, modified itself into a brass band. So, if we did not catch what we started out to catch, we have the prudence not to let on that we are disappointed.

Yet, after all, there is some liniment; there is still left some balm in Gilead for the wounded spirit; as now, we do not appear to care much; but this may be; because there is not much left of us with which to care, or to care for; consequently, we bring our philosophy to bear on the situation.

In our journey through this troublesome world, we have always found that there is nothing so active and clamorous;

nothing so still and silent, but they could, and might be, more so. Think of the inactivity of the brooding bird. Think of the awfulness of a silent solitude, or a mum fireside, when

Not a sound is heard,
Nor a stirring word,
From the mouth of your
Lusus, when sulky.

So, we have come to the conclusion, that all our crooked troubles in this world, may be only straight blessing in disguise; but still, it is rather difficult, even for a philosopher, to apply this theory to a case of this kind. Yet is does work a little even in our case, and is not so bad as it might be; because we have found out, that we make by the situation, anyhow, in the end; for when we get down to 2 ounces, and the Lord calls, and says, "Come, ye weary," it is not going to cost much for the funeral. Besides this, we have been looking forward to the time of our release from the *Loquaxl*-house of bondage. We have put something by, and in a very safe place—gentlemen, you must not tell anybody—but we have deposited in the "Freedman's Bank" enough money to pay for our headstone, and also the man to chop out the inscription:

Here lies all that is left of PROF. JUBAL:
He started in life from Nothing,
To Nothing he has about got down to.
In life, he was a Philosopher and a Man;
In death, he is an unrevolving molecule.
He died
From an overdose of LINGO.
Stop! traveller, and drop a tear,
If you can find anything to drop it on.
Should you desire to pray for anybody,
Pray for those
Who are passing through the furnace.

In silence he sleeps.
He has heard the last word.
No tongue can awake him,
To misery again.
Amen.

Young gentlemen, before closing our lecture, we desire to say, that when we composed our epitaph, we did it in accordance with the universal rule and custom of all mankind. Truth being down in her Well, she cannot, of course, be expected to come out and perch on a tombstone. Had we violated the rule, and told the truth about the women, our epitaph would have read thus:

Here lies PROF. JUBAL.
He lied when living. He lies when dead.
Being a type of all mankind,
He lied; will keep lying, until lying shall be no more.
Stop! traveller, and tell him so, and, for once, speak the truth.
If you want to lie by pretending to pray for something,
Pray that Truth may come out of her Well,
Before the Judgment Day.

When all your words, from first to last,
Which is recorded 'neath your name,
Will be, by angels, read aloud,
To your glory or your shame.
Amen.

This epitaph, gentlemen, would have been in accordance with the facts; because, in all our wanderings and diligent searchings from Indus to the poles, we have found the objects of our search, sitting at every fireside, rendering everyone happy with their cheerfulness, love, and goodness. We have found the hoping, trusting, patient hearts, like tendrils, clinging to those they love through all adversity. We have heard them utter, and have the *first*, the *middle*, and the *last* words; but these words have been thsoe of love, comfort, hope, and cheer.

Oh, woman! Mother! thou best beloved of Him, who once thou bore 'neath Bethlehem's lowly roof, and, on Calvary's height, did weep in bloody tears, the agonies of thy suffering Son:

Oh, woman! Sisters, all! 'in patience, pity, purity, and love! Stricken be the hand raised in anger. Palsied be the tongue that utters one harsh or unkind word to ye, whose virtues keep mankind from relapsing in barbarism.

END OF FIRST COURSE OF LECTURES.

SECOND COURSE OF LECTURES

AN INTERLUDE.

Preacher Congo's Letter to his Young Mistress.

PROF. JUBAL'S THEORY FOR THE ORIGIN OF THE WORLD AND SPECIES, SHOWING THE NATURAL CAUSE OF THE FORMS, AND THE CONTINUING EXISTENCE OF ALL THINGS AND SPECIES OF THINGS.

AN EXAMINATION OF THE PROOFS BROUGHT BY MR. DARWIN, TO SUSTAIN HIS THEORIES OF "EVOLUTION," "ORIGIN OF SPECIES," "NATURAL SELECTION," ETC.

Prof. Haeckel's Theory for the Origin of Man.

ALSO,

THE HUNT

AND THE

FINDING OF THE "MISSING LINK."

AN INTERLUDE.

THE CLASS OF YOUNG GENTLEMEN HAVING BECOME DOUBTFUL OF EVER BEING ABLE TO UNDERSTAND PHILOSOPHY, PROF. JUBAL ENDEAVORS TO ENCOURAGE THEM.

Young gentlemen. In our first lecture we commenced at the *alpha*, aud endeavored to show you some of the many different ways in which we philosophers have made the world. We commenced with a gas-filled universe; when the womb of time became pregnant with a future, and when that future was born, we were present at its birth, but more particularly that of this world. We then, during the existence of this world, followed her course through her Childhood, Youth, Manhood, Old Age, to Death. We attended the funeral, followed her remains to the grave, and inscribed on her tombstone:

"DIED FROM AN OVERDOSE OF EVOLUTION."

We then followed the ashes of her Dissolution through their course of Involution, until they reached a condition in which there was no motion, no distance, no time, but the undifferentiated Something, out which she arose.

We then, followed this Something in its new evolution until it re-aggregated and formed a new world. Experience being the mother of knowledge, and sometimes of improvement, we saw that nature, in her new evolution, took a new crook in her efforts toward an extreme perfecting, because, when the new baby-world was born, we saw that it was born reversely, or, as the vulgar say, "t'other end to." We also saw what condition of things this brought about.

We have endeavored to prove to you the great truths of philosophy. We have given you all the supposes, if 's, taking for granted, and demonstrations which philosophy has to offer. We have presented all the no-doubts and must-be's we know of, and yet, young gentlemen, you tell us, that "philosophy is too deep for

you ; that after a thing is proven by one philosopher, others say it is not true ; that you think you had better give up philosophy, and go to studying something of which you can be sure ; and as history is a narration of facts as they have occurred, you think that you had better study history."

Now, young gentlemen, there is were you would be getting out of the water into the wet. There is where you would be getting out of one uncertain pit to fall into a more uncertain one. If there is any truth in the saying, "Of two evils choose the least," you had better stick to philosophy, because the truth of history depends upon which side of the questions involved the writer may be. There are only two possible ways in which you can ascertain the truth of history. One is, from the admissions of an unfriendly or opposing historian to the questions involved. The other, for you to be present and see the events take place yourselves, or else, as with philosophy, you must take things for granted. For instance, when Mr. Darwin says, that the mammoth was evolved and descended from the animalcule ; that man, body and soul, descended from a big hairy fellow, furnished with a tail, pointed and wagging ears, you must take this for granted as being true, or go yourselves and see them evolve and descend.

You must have courage. You must not give up and say : "You do not think that you can ever understand philosophy." The wisest men who ever lived have said the same thing, yet, they kept on trying. If everything was known and understood, there would be an end to man's philosophizing. The great mission of philosophy is to hypothesize and theorize about things of which we know nothing, and the merit lies in the effort to discover that which can never be discovered. Still, the effort sweeps and clears the cobwebs out of the brain, and enables us to understand the difference between making a supposition, such as that there once existed a certain thing, and that of taking the supposition of its existence for granted.

For example : When Mr. Darwin is proving, as he undoubtedly thinks he does, where man came from, he *supposes* that in Africa, some anthropomophous or man-like ape *was* his progenitor. In so doing, he supposes the hypothesis of the existence of a man-like ape to be true ; and thus make the hypothesis

prove itself, in order to prove the point in dispute. This kind of logic is perfectly legitimate for natural philosophers, but among logicians it is called reasoning in a circle. Now, we never understood this until we studied logic and philosophy, and you can all learn these if you settle down to them. So, we say, you must not be afraid of failure. To encourage you, we point you to preacher Congo, who is not only a preacher, but a philosopher. He once was only a field-hand, and as you have already learned from what small beginnings some things have been evolved; think of Congo's small beginnings. We, one day, asked him, how it came about that he had learned so much? When, he said, "Fessor Jubal, 'twas lub en nebber gib'n up." Think of this, young gentlemen, love and never giving up. He then went on to say:

"You see, Jubal, long time 'go, fo' de war, me b'long ter massa Gift, en libed on de plantashun nigh on de Saluda riber en Souf Car'lina. Massa Gift he tink he better go whar he kin raise mo' corn en bacon fer de han's, so he sell de plantashun, en go off ter Tenn'see, en dar's whar we fus' seed our ole 'oman.

"We'd a young misses dar wat we lub'd ve'y much. She allus call' us Uncle, 'Uncle Congo.' W'en she go off ter school ter git her larnin' en be edicated fer a lady, she tole us dat we mus' 'rite ter her, en tell her all de news 'bout tings on de plantashun, en all 'bout her Mammy Congo, who wuz our ole 'oman. You see we wuz allus call' Congo, 'kaze massa Gift sed we wuz de brackes' niggah on de place. Our ole 'oman she fotch miss Jenny up, en we tink, lub'd her heap mor'n her own pic'nnies. Atter miss Jenny bin ter school 'wile, she writ uz a letter, en she sed: 'She jes done had good cry 'bout her ole mammy, 'kaze she coodn't see her; but sen's her bes' lub en tousan' kisses ter her mammy, en her Uncle Congo too."

"Our ole 'oman wuz so happy dat she got cross wid de chil'ern; en made 'em stan' roun' all day. Den she gits atter uz, en sez, 'Now Zeke, you jes' wash yo' han's en sot rite down on dat stool dar, en 'pose yo' feel'n's, 'kaze I'ze gwine up de house ter ax de misses fer de ink en paper. Bress de Lor'! en young massa Dozier, w'en you libed in Car'lina, fer larn'n you ter rite, so you cood let 'im kno' 'bout de young genl'men wat come ter see Miss Clara. Sot

rite down dar now! en git yo'sef ready ter rite de lub'nist tings you kin tink ob, ter my darl'n chile'.'

"We tells you wat, Fessor Jubal, we tink we did kinder spread our'sef on dat letter, fer we got de ink all ober uz, en de ole 'oman sed, we look' like we jes cum fum Ginney. But she wuz so pleaz' wid dat letter, dat she make uz copy et, en yer 'tis, so we'll reed it ter you, en sho' you how we got ter be a filos'fer, en atterwards chuze de better part—bress de Lor'!—tuck de narrer paff,' en got ter be a preacher er de Word. Jubal, yar's de letter:

PREACHER CONGO'S LETTER TO HIS YOUNG MISTRESS.

FUM DE PLANTASHUN.
May de fust.

Our dear Miss Jenny,

We's dun got dat nice lubly letter er yo'n wat cum troo de pose' office; en you mammy, atter cry'n' her eyes out, hab made tings kinder libely roun' de cabin. She druv all de chil'ern, 'cept Cicero, off ter bed 'fo' dark, en made yo' uncle sot rite down en rite de ans'er ter our lub'n chile. Yo' ole mammy sez, "dat you mus' larn ebyting, en be a 'zample er her broght'ns er you up; dat she pra's de Lor' fer chile, en de day w'en she cums home, en kin play de chunes un de big moosic-box fer yo' mammy en uncle."

Bout de news on de plantashun; dar ain't much change. Tings ez gwine' long jes' de way de Lor' mean dey shell go 'long; en ef he lets de debil hab he way wid sum people sumtimes, hit ez onny jes ter fine' out wat a ornery niggah wud do ef he lef' 'im widout 'he gyrdin angel ter look atter him. Deze gyrden angels ez purty tick roun' yer jes now, 'kaze de preachers ez gwine roun' on de Circuit, en dar's gwinter be a camp-meet'n down ter Jesse De-Brule's place outen de woods. So we axed massa ef we put en our bes' licks, wedder we mout go? Massa sez, "Zeke, let's see wat ez yo' best licks." Lor' chile, you jes' oughter seed yo' uncle wade'n troo dat cotton-patch. You jes' oughter seed him swing dat hoe. Dat hoe mus' 'cluded sumf'n broke loose. He neber fine' nuffi'n leen'n on he han'l all day. He neber fine hese'f ress'n 'gin de fence. He s'prize 'ter fine' hese'f gwine out 'fo' de broke er day, en gitt'n roun' dem cotton hills fasser dan he eber did afo'.

W'en we seed massa sett'n on de fence smok'n' he pipe, did'nt we make dat hoe pass up en down, cross ober en de middle, tak' yo' pardner en shassay-all? We neber lets on we seed massa, but wades in 'mong dem weeds en sings, yah ! yah !

We's up in de mawnin' befo' de broke er day,
Fo' de chick'ns gib de waunin' dat de sun he on de way ;
En de possum en de coon, dey tink it ve'y soon,
Fer de niggah ter be wurk'n by de lite er de moon.

Well chile, massa gib uz de pass, so we tinks we's better hab sum loose shill'ns en our pocket, so we mout spar sum fer de Lor'. So w'en de moon tuck hese'f outer de way, we gits up en goes out en try ter cotch sumf'n en sell 'em ter ole Kuckenbeezer in de market. Dar's one ting 'bout ole Kuckenbeezer, he neber bodders hese'f ner axes nobody 'bout whar de trunk cums frum. He neber axes onnessa'y quesh'uns, but jes' sez : " Dar's gwinter be a change en de moon." We sez: How you kno'dat? He sez : " Kaze dar's so many chick'ns cummin' ter de market, en 'fo' de moon change, de chick'ns allus roos low." Now ole Kuckenbeezer mus' kno' sumf'n 'bout 'stronomy, 'kase dem chick'ns wat looz darsels en de dark en we foun', wuz roos'n purty low down.

Dar's 'nudder ting 'bout ole Kuckenbeezer. He neber axes you how much you want fer dem chick'n, but jes' shubs 'em in de coop quick, en frows you two shill'n. We tells you wat, chile; dem chick'n wuz mity fat fer dat brice, but we neber 'sputes wid folks. Wat's de uze 'sput'en w'en dey's got de bes' er de arge'men'? You better kep' yo' mouf shet en let 'em 'joy dar 'pinions. We's seed niggahs git forty fer 'spute'n.

Well chile, yo' jes' oughter seed yo' uncle nex' mawnin' git reddy fer de camp-meet'n'. You jes' oughter seed 'im curry down dem cloze wut young massa Eddard gib 'im w'en he go off ter de Norf ter git he larnin'. We tells you chile, dem niggahs et de camp-meetin' tink we b'long ter massa Wade Hamp'en, wid dat bloo coat en dem pants wid de straps on ter hole 'em down. We did feel kinder 'ristocratic, but we neber lets on, 'kaze we's allus foun' dat nice cloze cubbers a mul'tood er sins. De Bible sez dat. Hit sez : " En he wuz clodded en de remnant ob fine linen."

Now, miss Jenny, 'fo' we gits troo', we's gwinter tell you wat we's bin reed'n on; wat S. T. Luke, de Possel, sez 'bout de rich man en Laz'us, but befo' we duz dat, we mus' tell you 'bout de camp-meet'n'. Dar wuz one er dem preechers dar, wat got atter de sinners en shuck 'em en de burnin' pit purty libely, en we tink he'd a mity good 'pinion ob hese'f, 'kaze he tole 'em: "Dat we'n dey wuz swimm'n' en de burn'n' lake, dat he'd be look'n' down on 'em fum de new Jerus'lam; play'n' on a celes'tal harp, en sing'n a new hymn wat he made outer he own head fum de Bible." En he tole 'em whar dey cood fine' de tex,' ef dey hunt fer der places whar dey cumes in, 'tween de alfa en de 'mega ob de Rebelations, whar de Patmos libed et de time de Possel John wuz dreem'n 'bout de Lor'.

DE HYMN.

De Lor' he make de burnin' pit ter put de debil in,
Kaze he rebel' up'n hebben, en try' de crown ter win.
But de Lor' he sen' he char'ots out, wile on de trone he sit,
En tole de angel Mich'al ter put 'im in de pit.

No Abram en de buzzum dar! No Laz'us wid de cup!
Ter gib you drap er water, fer de fire dun burn hit up.
You needn't tink ter fool de Lor', He know's all wat you doos.
He duzn't want no tell-he-gram, ter kyarry he de news.

You needn't try ter sneak en hide, de Lor' will fine' you out.
Dar's nar' a sinner on de yearth, he don't kno' all 'bout,
En ef you want ter 'scape dat pit, jes pra' fum nite till morn,
En shout de Hallylooyah, till Gabe he blows dat horn.

So, atter we gits home ter de cabin, we gits de Bible en hunts fer dem tex' ter sen' 'em ter our chile. We's on'y got one er dem Pope's Bibles, so we isn't sartin you kin fine' 'em in de same place whar dat King James put 'em w'en he make he Bible. En 'sides, sum er dem ministers hab bin 'vizin hit sence, so hit ez purty hard ter keep de run er de way dey's bin chappin en twissin de Bible ter suit deysefs. We tink ef dey keep on 'vizen en 'vizen de good ole book, dey'll 'vize hit out'en de harts er de people all-togedder. Dey better let de Lor's book 'lone. De people bin gwine ter hebben dese many years wid de ole Bible, en dat's all de Bible's fer, anyhow. Dey can't git no

higher den hebben, nohow. En 'nudder ting: sum er deze preechers dey's allus quarll'n en fite'n 'bout de rite road. We don't kyar wat road de folks trabble, so de only git dar.

Ef dey wanter be a Baptis,' en wid de Baptis' stan',
Or good ole Presbyter'n, we takes 'em by de han'.
En sez good brudder Mefodist, you jes drap down yo' sin.
We needn't quar'll 'bout de road, ef de Lor' he let uz in.

De Lor' won't ax uz 'bout de road, ner how we reach' de gate;
He'll wanter kno' wat goods we brog't, en nebber let us wait
Outside; but quickley let uz in, ef atter 'sortin out our loads,
He fin's no trace ob sin.

Still, chile, dat preecher et de camp-meet'n did kinder scar' yo' uncle. So we's bin hunt'n leetle mo' fer dat narrar paff, en try'n ter git odder folks off de broad road. We's teach'n Bible class now, en hab foun' out dat ef we wuz ter read out dem tex' en de Bible jes de way dey ez, dem tick-headed niggahs wud neber onnerstan 'em, so we hab ter splane ez we go 'long. We axe' 'em one Sunday mawnin', wat a *Chaos* mean? en one un 'em sez: "he 'spose' 'twas a hoss wat wuz brand' on de hip wid a K." So we wuz 'bleeg'd ter 'splane dat 'twas a Jerus'lam wurd fer de big fence der Lor' build ter keep de debel offen de hebenly plantashun. Den we tell 'em ter tu'n ober de lebes er dar Bibles en fine de Gospel ob S. T. Luke, en den look fer de Chap. XVI, en de par'gram 19, en dar dey'll fine' wat de Lor' sez 'bout de rich man; wat trouble he hab 'fo' he kin git ter de Promise' lan'; en wat he cotch ef he don't git dar; dat de needle kin git troo de camel's eye heap quicker den he kin git ter de kingdom; dat dey better lay dem riches up whar de t'eeves can't broke open de do'; whar de mauf en de rus' can't connec', en whar dem wid de big loads kin lie down en res'.

Den we tells de class, Dat w'en de Lor' wuz on dis yearth gwine roun' hol'n, camp-meet'ns en 'zortin' de people, dat S. T. Luke wuz 'long wid 'im. En in de Chap. XVI, he tells you wat de Lor' sed 'bout de rich man wat libed out 'bout fo' miles fum Jerus'lam, on de road ez you go ter Joshefat, 'fo' you cross ober de turnpike on de way ter Joppa. Dis uz de same road dem foolish wirgins tuck en de nite, widout eny kerosene in dar lamps.

En de par'gram 19, yo'll fine dat dat rich man had big plantashun en heap o' niggahs. He wo' de bes' cloze en put on clean shirt ev'y mawn'n. He allus had fried chick'n fer he bre'kfus; fer S. T. Luke sez: "He farred sumpshus ebery day." Now, in de par'gram 20, you fine', dar wuz a poo' free-niggah dar, wat had no massa ter take keer on 'im. He had de reumatiz en big soe's on he legs, so he coodn't wurk, en he useter beg roun' 'mong de cabins. He name wuz Laz'us; but de folks call' 'im Laz. One day, w'en he be ve'y hungry, he goes up ter dis rich man's gate en lie down in de sun. De dogs roun' de place dey smell sumfin, so dey jump de fence, en lick Ole Laz' ez he lie at de gate. Purty soon one er de house-sarvants cum down ter see wat de dogs a doin'. So, Laz, he axed de sarvant ef he wud gib 'im sum er de leeb'ns wat dey fro'd en de swill-bar'll? S. T. Luke duzn't say wedder he got eny, but we reckon not; kaze in de par'gram 22, he says: "Laz'us he die, en de Lor' sen' Gabr'al en Mich'al down ter fotch 'im rite up en drap 'im en Abram's buzzum." De rich man he keep on eat'n de fried chick'n ebery mawnin', en drinkin' de shampane er de burgundy ebery nite. So one day, he git too much er de good tings inter 'im, en he drap' down dead.

Now, de bebil he bin keep'n he eye out on dat rich man fer long time, en useter tell he odder debils, "Ef he don't go back on me, I gits 'im sho'." So, w'en he see 'im drap, he jess call' a cupple er he debils to snake 'im out, en tote 'im down ter de pit.

The Devil's Soliloquy.

Den de bebil he sez ter hese'f. "We'll see who gits de mos' w'en dat Jedgmen' day cums roun'. I'd git 'em all ef et warn't fer dem camp-meet'ns en dem preechers, but I don't keer, I gits a preecher once in 'wile, en don't I stir up de brimstone fer he? Don't I rake out de ashes so de draf' hab a chance? Atter I cotch one er dem preechers en fix 'im on de gridiron. I allus gib my debils a half hol'day. Dey's allus look'n' out fer dat, en dey call it, dar 'Fouf er July.'

"I don't keer ef I can't git all de preechers, I gits all de stock brokers; dem wat puts up jobs on de people, en fix up de 'ports dat dey's struck it en de 40-foot lebel; dat de new pump hab

got ter wurk, en trows out mor'n 6 gall'ns er water ebery minit. Den dey sen's sum fellars roun' ter tell de people de secret dey's foun' out, fum a frien' er darn wats on de inside, but dey musn't tell nobody. Den deze fellars whisper, dat de 'Bonanza' hab dipped tow'rds the norf; dat de 'Gopher' hab got troo de souf-wall; dal de 'Yellow Jackets' 'Chollar' ez de 'Best-B' on de 'Comstock;' dat de "Mexican' 'Savage," call' 'Potosi' jined de 'Union' on de norf'ern side 'gin de 'Consolidated Virginia,' so dat de 'Justice' er de 'Independence' kin bid 'Defiance' ter de 'Scorpian' er de 'Exchequer.' Dat de 'Champion' er de 'Bonanza King' hab 'Crown de Point' er de 'Summit' er de 'Sierra Nevada,'en now uz de 'Last Chance' fer dar frien' ter git de 'Golden Prize.' Deze fellers wat go roun', allus sez, dat de 'Overman' er de mine, who's name uz 'Bodie,' uz a frien' er darn, en cum ter 'California' fum 'Mono' 'long wid 'Hale en Norcross,' en ef dar frien' kin raise a dollar'n half, er two dollars, he better git in. Well, I gets all dem.

"Den, dar's de politishuns wat lub de people so much, dat dey wanter sack'fice darse'fs en am willin' ter spen' all dar time hol'n on ter de Office do' en let de people hab nuffin' ter do but pay de taxes. Talk 'bout de needle's eye gwine troo de camel quicker dan de camel's eye kin go troo de needle. Why deze fellers git down ter my place 'fo' de camel git ready ter start. I gib all de odders en charge er my debils, but I takes keer er de politicul chaps myse'f.

"Den, dar's dem grocers wat water de molassus, en san's de sugar; en dem pure milk fellers wat make no profit on dar milk kaze 'Spring Valley' hab put meters on dar pipes; en doze pious planters wat 'tend church meet'ns, but put big rocks en de cotton bales; en doze fellers up norf wat make de peg-shoes en put paper 'tween de soles, so dey don't las' de poo' niggah mor'n half de winter; en dem wat makes wooden nutmegs all de week en shout 'Glory!' ebery Sunday. Well, I gits all dem.

"I don't trubble myse'f 'bout de histor'ns ner de newspaper chaps, 'kaze dey's my own chil'ern; but dem Hookmesneevers en dem Sheetemvigs wat sell de cotton-socks, en swar 'So help me! dey's all vool; dat dey loosh monish on the goots; dat dey coodn't zell 'em fer dat brice, only dey's got a pardner en keeps two stores; en dat de goots vas so sheep es never vaz.'

Judas takes keer er dem, en all dem two per-shent fellers, en agents wat betray dar trus' en go back on dar massas. I hab less luck wid de picter makers, 'kaze dey's so art-full, dey's jes like de poet en de moosic men; dey tink nobody can do nuffin so good ez darsel's.

"I gits my shar' er de Doctors; en I gits all de Lawyers. I beats de Lor' on dem. En dar's so many ob 'em; en dey cum so fas', dat I wuz bleege' ter set de Contractors ter wurk ter 'large de pit. W'en dey fus' cum, dey tried de *habeus corpus* on me, but de Jedge woodn't grant de writ. Den dey try' de jewrisdicshun, en de change er venue dodge on me. Den de 'peal; move' fer new trial; want' ter 'men' de ans'er; try' ter git de witness' outer de way, en 'manded a jury trial. All on 'em foun' a flaw in de 'ditement, en talked 'bout dar pribliges ob council. I sho'd 'em de law er Moses en de 'vized code er de Possels. Dey demurr' en sed: 'dey neber seed doze laws; neber har'd tell on 'em; 'manded de aut'ority; 'kaze dey neber 'llow'd de oral w'en de scriptum wuz aroun'. Den I turns ter de 200 tousand section, page 10 million er de moral code, en I reed it all, w'en dey fine' out dey done broke ebery one er dem laws. So I oberrule' de demurr' en reed de fus' section. *Ignorantia legis neminem excusat.* Ign'rance ob de law ez no 'skuse.

"Es ter de chil'ern, I don't want dem, en I woodn't hab de women, no how. Ef I wuz ter let in dem women, dar'd be a row en less'n a week. Dar'd be de strong-minded, de weak-minded en de mind'n-eberybody-elses-bizness women. Day'd be gitten up dar meet'ns; pass'n resumlooshuns 'bout dar 'quality en dar rights, en dey'd hab de las' word ef dey wuz 'bleeg'd ter do all de talk'n, en I neber har'd one on'em break down et dat yit. De Doctors dey's bad 'nuff argin' 'bout dar dignoses; quarll'n 'bout wedder de di'fram os'llates de 'mbilical action ob de membran-us motion ob de cer'bral tubercolosis. Gabr'al en Mich'al wat kicked me outer hebben mout onnerstan' 'em, but I can't; en I nebber saw, ner har'd one er dem doctors dat eber did gib in, sense I'ze bin en de stoke'n' bizness. Why, dar's dat S. Q. Lapius en dat Galen dey's bin et it fer I don't kno' how long, en dey neber 'greed 'bout eny one ting yit.

"One day I got one er doze small pill'pathy chaps, en he kinder got the bes' er de yuthers. De yuther fellers dey's de

big pill'pathy, dey's all'pathy. One day dey wuz kick'n up sech a row dad I had ter shovel in some extra brimstun 'fo' I cood stop 'em; fer de small-pill chap, he got ter 'lucidat'n' how he pathy went chock down de 'oss'pital thorax en cause' de segmented cart'lage ob de fronto-max'llary ter artic'late de claviclar ob de synoril membrane.' De big-pill doctors dey look at one annoder, en de one wid de gole speck'ecules sed: '*Lunaticus*' w'en de small-pill man turn' on he heel en sed, '*verbum sat sapienti, veritas vincit.*'"

We don't 'spoze chile, dat you onnerstan' all doze tings wat de debil talk ter hisse'f 'bout; but dar's heap troof en 'em, eben ef de debil tells 'em. But now we's gwine on ter tell you 'bout de Bible-class. We axed de class ef dey's foun' de par'gram, 23, whar et sez: "So hit cum ter pass, w'en de rich man git down en de pit, he foun' hit radder warm, so he look all roun' fer de water.

He hunted up, he hunted down, but coodn't fine' a sup.
De fire en de brimstun, done burn the water up.
He hunted in, he hunted out; den up he cass' he eye,
En dar sees Laz' en Abram, a sett'n en de sky.

Den he holler out, mity loud, "Abram! Fadder Abram! tell Laz'us ter dip de gourd in de water wid he little finger, en sen' im down ter drap et on my tongue, fer it am hotter down yer dan forty back-logs."

Den, Fadder Abram, he sez: sonny, member w'en you wuz on de yearth, w'at de Lor' sed 'bout de rich man; 'bout dem camels en dem needles; how he tole you sell off de extra fix'ns 'bout de place en foller Him. But you hole onter 'em. En 'member how you tole de sarvants ter drive Laz'us outer dat gate. Now, you fine' out, dat Laz'us good time hab cum. Now he drink ob de fount'ns dat poo' out de waters ob res' en flow down de hebbenly Jordan. Now you kno' wat de Ab'lishun Profet sed ez cum to pass.

En yo' day ob tribul'tion I'll sen' de veng'n' ban,
De Grantites en de Shermanites ter ravish all de lan',
Troo' Georgia en de Car'lines, en neber let 'em stop,
Till dey dar brudders crush, en put, "*de bottom rale on top.*"

En dar's nudder ting, Mr. Dives. Laz'us coodn't git down dar, nohow, fer de Lor' he fix big swamp 'tween ez, en build big chaos fence 'cross de road, atter he druve de devil off'n dis plantashun."

Now, de nex' par'gram 26, sez: "So w'en de rich man foun' dar wuz no chance ter get de water, ner git outer de pit, he beg Fadder Abram ter sen' Laz'us down ter de ole homestead on de yearth, to tell he ole man en de five boys ter look out wat dey's 'bout, en stop dar goen's on; ter git up airly in de mawnin,' en foller de Lor', so dat dey keeps outer dis pit, whar de angle-worm libes all de time, en de fire neber goes out."

De nex' par'gram, 27, sez: "Den Fadder Abram he tell de rich man, 'dey's got Moses en de profets down dar, why don't dey go ter de camp-meet'ns en year dem? Moses writ de law on de tables. He tell 'em de differ'nce 'tween de eye fer de eye, en de toof fer de toof. W'en he up on mount Pisgah en de burn'n bush, he pint out de way ter de Promise' lan', whar de cows drap dar milk, en de bees dar honey, till hit flow clar down ter de edge er de riber Jordon.'"

Par'gram 28, sez: "Den de rich man sez: 'Oh, no! Fadder Abram! dem breddern er mine don't go much on Moses ner de Profets, but ef Laz'us wuz ter go back—dey all kno' Laz—dey'd b'leeve 'im, en stop dar fool'n.'"

De las' pa'gram reeds: "Den Fadder Abram he sez; 'Dis ez all nonsense, Mister Dives. Ef dey duz'nt b'leeve Moses, dey iz'nt gwinter b'leeve a word poo' Laz'us ud say. Needer dey ner you did'nt b'leeve 'im w'en he tole de sarvant man he had'nt a squar meal fer a week, 'sides, no coat on he back. You don't 'spoze ef he go down dar filled wid hebbenly manna, en wid wings on 'im, dey's gwanter b'leeve 'im, duz you? Dar's no uze bodder'n me any mo', I'ze got sumf'n else ter tend ter. Ize got ter chune up deze harps, so dat Laz'us kin practice on de

"CANTICLE OF PHARAOH."

Dar wuz a King down in Egypt call' Pharo,
Who made de wurk er de Jews hard to bear, O!
He wagons ter draw, en make bricks widout straw,
Fur dis ole' gyptian King, dey call' Pharo.

Dar wuz 'mong 'em a Jew dey call' Moses.
[Dey cood tell wich wuz Jews by dar noses.]
Aaron gadder'd de Jews, en tole 'em de news,
Wat de Lor' had commanded ob Moses;
Ter go to de King, en tell 'im dis ting:
"Dat he people mus' go 'long wid Moses."

But de King he sed "No! I won't let 'em go!"
"Den I'll plague you wid lice en muskeeters,
Wid locus' en snakes, make ducks er yo' drakes,
An gib murr'an ter all er yo' creeters."

"All dat's ve'y nice, jes bring on yo' lice;
Fer murr'an en snakes I don't care, O!
En ez ter de locus' dat's all hocus-pocus."
Sed dis libely ole King, dey call' Pharo.

"En ez ter de frogs, I'll feed dem ter de hogs;
De fus'-born I kin ve'y well spare, O!
En ez ter de biles, dey ain't half's bad ez de piles."
Sed dis stubborn old King, dey call' Pharo.

Den de wise men step' in, wid dar music "ob chin,"
Sed, "en yo' sarvice our libes out we'd wear, O!
We tell you no lies, w'en we sez dat de flies—"
"Git outer de shanty!" sed Pharo.

"Deze magishuns er mine, tink hit all ve'y fine,
Ter cum ter my presence en dare, O!
Ter gib me adwise 'bout der flies en dar lice."
Sed dis angry ole King, dey call' Pharo.

But w'en hit cum nite, en de lice 'gin ter bite,
En he skin he did scwatch en did tear, O!
En he passh'nate fit, he tole 'em "ter git!"
Dis lice-tormented King, Pharo.

Sum shekels he loan 'em, ef he had'nt, dey'd "boned" 'em,
En gabe 'em sum cloze fer ter wear, O!
But wen dey wuz gone, he 'pented 'fo' long,
En sez, "I'ze a fool ob a Pharo."

Den he sot up a shout, en call' de troops out,
En he got en a char'ot en pair, O!
En nebber stop' he, till in de Red sea,
Whar de fishes dey chawed up King Pharo.

Now, my chile, I'ze gwineter cloze de letter, en, long wid yo' mammy, say good-bye, 'kaze yo' uncle mout be gwan 'way 'fo' you git bak. De folks in de college down in Wirginny, want yo' uncle to cum en be a Fesser. Dey want 'im ter 'splane de Darwin filos'fy, ter sho' de boys whar dey cum fum, en de teology, ter sho' 'em whar dey's gwine ter. En dey want de boys ter larn de met'fisics, so dey kin fine' out What's wat, en dat eberyting dat Iz, allus Wuz. En den fer me ter 'splane de maf 'matics, so dat de boys kin figger out: Ef A hab nuffin, en B hab nuffin, who de tings b'long ter? So dat dey kin 'clar a dividen'. En den de 'natomy, so dey kin kno' whar de bones ez; en de surgemy, so ef dey fell off de fence en brake 'em, dey mout kno' how ter men' 'em. Sides de fisicus, so dat dey kin cure de rumatiz en de seben year itch; but mo' tickerly, dey want de boys ter larn de legalology, so dat dey kin git out payin' fer dar washin', en *habeas corpus* darsel's outer jail.

Dar's lots mo' ologies dey want me ter 'splane, but I don't kno' ef I 'cept de place. I like my own 'ligion bes'. 'Sides I'ze gitt'n purty ole now, en it am hard wurk ter' splane how we cum out of nuffin', 'fo' we go ter be a mol'cule, den a'malcule, den kep' 'volvin' an 'volvin', till we got ter be a gang'lated meder'lly mass ob inartic'lated mollux. Yit, ef I fine' out dat de Lor' tinks I kin do mo' good dar dan in de winyard, I mout 'cept de place.

"Lor' bless our chile, en don't forgit,
Yo' Mammy, en yo'
Uncle Congo, too."

Now, young gentlemen, you can see what can be accomplished by love and not giving up. If you love your studies and do not give up, you can all become philosophers. After Congo had finished his letter, we told him how discouraged you were, when he said: "Well, massa Jubal, you jis tell yo' young gen'lmen ter 'zample darsels by 'sperience en neber gib up. Tell 'em dat 'fo' I run 'cross doze great tinkers in filos'fy, Darwin, Spencer, Haeckel, Vogt, en dat ole Skept'cus, I didn't kno' wat a sartin sho' ting filos'fy wuz, but I tuck de Bible ter be a leetle mo' sartin, so I stuck ter dat, 'kaze I didn't want ter take no chances w'en I gits inter de inwisible.

Jubal, you press hit on de mine's er doze young gen'lmen, dat if dey stick ter dar wurk, en only guess 'nuff, en den 'buze ev'y-body else wat don't guess dar way, dey kin all git ter be filos'fers, but ter neber gib up. Tell 'em, dat de one wat hollers 'nuff, er allus whipped. Tell 'em, ef dat coon hadn't sed he'd cum down Capt'n Scott's gun mout er flashed in de pan. Tell 'em ter tink er Gen'l Grant en Susan Nipper; dey neber gib up. Why, eben de debil mout er won de fight ef he only hole' on 'long 'nuff, en tucker'd Mik'el en Gab'el out. But 'bove all, tell 'em ter reed dar Bibles, en larn. Dat he wat put he han's on de plow-shar, or de sowin-masheen, mus' neber look back, er he Lot 'ull be a pillow ob salt. I tells you Jubal, if you class wu' wimmen, dar'd be no truble, 'kaze dey neber gib up. Dat's bin my 'sperience.

So, young gentlemen, believing that you will follow the advice of preacher Congo, we will proceed with our sixth lecture.

LECTURE VI.

Some Preliminary Remarks before Entering on the Jubal Theory.

Young gentlemen, in our first lecture we showed you some of the many ways that Life came on this earth; and although we found no two philosophers agreeing, still, we found them of one opinion in, that life does exist on the earth, also in whatever way it came, it was in very small packages; in some so small, that the microscope has not yet revealed it in them.

The purpose of our future lectures will be not only to account for how all the living packages, of which we have any knowledge, came to be of such different sizes, kinds, and qualities; to have such different modes of living, and to perform such different actions; but also to endeavor to find out whether all this was brought about by Evolution, Transmutation, or the Theory of Descent, including Natural Selection; or whether our theory, the Jubal Theory, is not more reasonable and philosophical.

Although we have already given you some insight, some knowledge of Mr. Darwin's theory of Evolution and the Origin of Species, we have not attempted to follow the links of the evolutionistic chain from its infinitesimal beginning of species up Man, the golden-link on the end of this chain, but in doing this, we shall find that "missing link," which, in hunting for, has given our Evolution philosophers so much trouble and anxiety, and shall endeavor to show you, that they have overlooked it in their blind determination to find it somehow in the Quadrumana or monkey.

We shall trace the links of this chain from the man down to the first speck of living matter that ever appeared on this earth; and, then, we shall see if this speck of matter evolved in the sense as used by our modern Evolution philosophers. Therefore, it will be necessary, in a few words, for us to go back to a beginning or to a No-beginning of things, in order to show you how all living things come from invisibility to visibility, in their

different forms, sizes, colors, and habits; and how they come to, what we call, die. Also, endeavor to prove to you, that, in the proper sense of the term, no thing that ever lived, can ever die.

A Glance at the Two Most Commonly Accepted Theories of the Origin of the Universe, Particularly of This World.

Before entering upon our theroy, we will again present to you the two most commonly accepted theories for the origin of the visible universe, the world and everything in and on it. Each of these theories agree in, that there once existed a chaos, or primordial matter in a condition of confusion; that from this matter the visible universe has been produced. But these theories differ as to the primal *cause*, and also as to the *mode* by which this was brought about. Without inquiring into the origin of matter, we accept the hypothesis, that first, before the worlds were formed, there existed a chaos, a mass of primordial matter, termed atoms or molecules, but we shall differ with other philosophers as to the *mode* by which the world and everything in and on it have been produced from this matter.

The most ancient, and most universally accepted theory is, that of Moses. Christian Philosophers adopt the Mosaic account of Creation as a philosophical theory, which asserts:

First: A beginning of things; that the universe, the world, and everything in and on it, were Created by a Supreme, intelligent, First Cause.

Second: That what we call Nature, is finite, contained in the infinite; therefore, had a beginning in what we call Time.

Third: That the forces or laws which govern and control nature were *impressed* upon her by her Creator at the time of her creation, and, that the Mosaic account is the *mode* by which she was brought into actual existence.

The other and more modern theory, which is accepted and adopted by those philosophers who deny the existence of a Supreme, Intelligent, First Cause, asserts:

First. A Self-existence or No-beginning of things; that primordial matter existed always, and that the universe is infinite and full of this matter.

Second. That this matter, termed atoms by some philosophers, form molecules, which are all different from each other, and are assorted into sets; that these molecules, by their aggregation, form all objects, animate and inanimate in Nature.

Third. That the *mode* by which the visible universe, the world and everything that ever was, is, or ever will be in, or on it, have been produced from this primal matter, by a self-existent natural law called "Evolution."

Of the primal origin of this primordial matter or molecules, which filled this finite, or infinite universe, we shall have nothing to say, nor enter into the question: What first gave impulse to these molecules? But with these primal philosophical bricks; the mortar of chemistry and molecular physics, we shall build the superstructure of our theoretical edifice, and endeavor to show the true *mode*, by which these molecules formed the world and everything in and on it. Therefore, be the universe finite or infinite; be it existing from a beginning or from a No-beginning,

The Jubal Theory Affirms,

First. That from the first, there existed, and now exists, just so many sets of molecules, and no more, of certain specific and peculiar kinds, which belong to each and every object that ever did, or ever will exist; that the great variety of rocks, metals, minerals, chemicals, etc., etc., which form our earth; the great variety of trees, plants and all living things are formed of these molecules.

Second. That all things and species of things, which ever did, or ever will exist in actuality on our earth, pre-existed, were pre-formed, whole and entire, invisible, in the germ state; that when these come into visibility, they do not *grow*, but are increased in size only, by the addition of their own specific and peculiar molecules, which were either intended by a Creator, or were compelled by a natural law, to form each particular individual entity or thing.

Third. That no thing, either in the invisible or the visible, can ever change into another and different thing by Evolution, Transmutation or the theory of Descent, nor Natural Selection.

Fourth. That in nature there are no such things as generation, growth nor death.

Fifth. That each individual entity, from an animalcule to a world, is formed but *once*, and only when its *own* particular and exact *time* comes.

Sixth. That as all things exist in potentiality, when the molecules which are to form, in actuality, all bodies, organic and inorganic, shall have come *once* into actual visible existence, performed their peculiar mission, and are all used up, that then will come, what is called by creation-believing philosophers, the "Judgment Day," and, by Mr. Spencer, "Universal Dissolution."

Seventh. That when natural bodies disappear by burning, decaying, etc., etc., their molecules never again assume another form; that every natural body when it comes into actuality, is formed of a *new* and *specific set* of molecules.

Gentlemen, we will first call your attention to some points. Taking either of the two thories we have mentioned, as to the primal origin of things, our theory denies that it has taken untold millions of ages to evolve the world or any object visible or invisible upon it. It also denies that it has taken millions of generations for Evolution to produce the different species of living things; but affirms, that they pre-existed, were pre-formed in their germ state in the imperceptible, and comes into the perceptible only, when their *own* specific and exact *time* comes. Thus, as millions of individuals of our present species of living things did not come into actual or visible existence for millions of years after others of the same species, so will individuals of these same species not come into vislble existence for trillions of years yet to come. We alluded to this in our second lecture, where we said: That unless we admit an act of creation, we cannot get *some* thing out of *no* thing; that no object, no man can be born, as is said, until his own specific time comes; that the natural *cause* why Moses came into visible existence before Julius Cæsar, and Cæsar before Stonewall Jackson, was, because the molecules which pre-existed and were to form Moses, aggregated and brought him into actuality before those of Cæsar and Stonewall Jackson.

The Different Senses In Which Evolution Is Used By Philosophers.

Before entering upon the details of our theory, and accounting for the formation of the world, the geological strata, and the fossils found in them; also, for the origin of the different species of living things ; the natural cause of their continuing existence ; how they increase and decrease in size, weight, etc., etc., we had better see in what consists the difference of the sense in which Evolution is held and taught by philosophers.

Mr. Spencer's sense of Evolution is, as he says :

"Evolution under its simplest aspect, is the integration of matter and concomitant dissipation of motion. Matter being primordially uniform has become multiform. Changing from the homogeneous to the heterogeneous ; from the indefinite or undetermined, to the definite or determined ; from the incoherent to the coherent."

Mr. Darwin's sense of Evolvtion, as applied to the origin of species is, the theory of Descent, Filiation or Transmutation, viz : that

"All organisms, that is, all species of animals, plants, etc., which have ever existed, or which still exist on the earth, are derived from one single, or very few single forms, and that they have *developed themselves* from these in the natural cousre of a gradual change."

In laying down this foundation for his theory, Mr. Darwin avoids accounting for the origin of life, also, for the evolution of these single forms, or their reason for existence *as such.* In the animal species, he contents himself with a first actual existence of a living organism, that of an animalcule.

Mr. Spencer, who denies the beginning of life or anything, comes to Mr. Darwin's aid, and says :

"It may be argued, that on the hypothesis of Evolution, Life necessarily comes before organization. On this hypothesis, organic matter in a state of homogeneous aggregation must precede organic matter in a state of heterogeneous aggregation. But since the passing from a structureless state to a structured state, is itself a vital process, it follows that vital activity must have existed while there was yet no structure ; structure could not else exist."

He further tells us, that "organisms are built up of highly complex molecules."

Let us now understand what all Lexicographers give us as the definition of the word, Evolve. To evolve is to unroll, to unfold, to expand, to develop that which already exists in a form or condition of being inrolled, inwraped, inclosed, and enveloped. In the theory of Generation, Evolution is applied to the unfolding or expansion of a germ, which germ is said to contain all that which afterwards develop. Remember that Evolution is not causation, neither is substitution. You must not forget this.

Now, gentlemen, let us see in what sense Evolution is understood and taught by philosophers who hold the theory of Creation by Fiat; those who believe in an intelligent, First Cause. We need go no further back than 1500 years. The great Bishop of Hippo, St. Augustine, speaking as a philosopher, after establishing that the reason of man can find no impossibility in an act of Creation—this depending, as all possibilities do, upon the power of the agent—maintains:

That in the very beginning of the creation there were certain entities specifically distinguished in their proper natures—as the elements, the celestial bodies, and spiritual substances; while there were some in their *siminales rationes* only, as animals, plants, and men, all of which were afterwards produced in their proper nature by that operation, by which, after those six days, God administers nature already created. That the whole Universe was created in an instant, and all organisms were then created, not actually, but potentially to be subsequently *evolved* into actual existence at due time and season when the conditions originally intended and decreed should arise.

St. Thomas, of Aquin, the great Doctor of the Schools, after describing the Mosaic account of Creation, says:

"Thus was completed the work of the Mosaic six days, all the rest was the result of a *gradual evolution;* that is to say: of an evolution effected by the Creator according to the laws imposed by Himself on nature through the operation of natural causes. For, in those first days, God created the creature *in its origin or cause*, and afterwards rested from His work. Nevertheless, He subsequently until now, works according to the administration of created things, by the work of propagation. Now to produce plants from the earth belongs to the work of propagation. Therefore, on the third day plants were not produced in act but only in their cause. For thus taught Moses [Gen. ii, 4]: '*These are the generations of the heavens and the earth when they were created in the day when the Lord God made the heavens*

and the earth and every plant of the field BEFORE *it sprung up in the earth, and every herb of the ground,* BEFORE *it grew.*' "

We desire that you keep in your minds this sense of Evolution, viz: "That all creatures exist potentially in their origin or *cause;* are specifically *distinguished* in their proper natures, and are evolved into actual existence at due time and season when the conditions originally intended and decreed should arise." You will then be enabled to follow us when we compare it with the sense of Evolution as used by Spencer, Darwin, and others. Also remember, that the assertion of Self-existence is the denial of Causation.

Opinions of Some Philosophers on the No Beginning of Anything.

First, let us hear what Prof. Haller, of Gottenberg, who is called the "Father of Physiology," has to say on this:

"No really new formation takes place during the evolution of each individual organism, animal or plant, including, therefore, Man. There is only an unfolding of parts, all of which, from all eternity, have been present, pre-formed and complete. Every organic germ, therefore, contains all the parts and organs of the body pre-formed."

The celebrated philosopher of Geneva, Charles Bonnet, tells us:

"Nothing is really produced in the living world; but the germs which develop have existed since the beginning of things, and nothing dies. But when, what we call death takes place, the living thing shrinks back into its original germ state."

These philosophers agree with Leibnitz, who says:

"There is no such thing as *generation*; in the proper sense of the term, in nature. It is merely the expansion of the invisible to visibility."

Prof. Ernst Haeckel, who denies the theory of Creation, and teaches Evolution in the Darwinian sense, in his "History of Creation," says:

"Natural science teaches, that not one particle of matter has ever come into existence, or one passed away. When a natural body seems to disappear, as for example, by burning, decaying, evaporation or chemical combination In like manner, the coming into existence of a natural body, a crystal, a fungus, an infusorium, depends upon the different particles, or *molecular*

aggregations, which existed before in a certain form or combination, assuming a new form or combination, in consequence of changed conditions, of existence. But never yet has a particle of matter vanished, or even an atom beena dded to the already existing mass."

Now we will hear the greatest of all our philosophers, Mr. Spencer. In his letter to the "North American Review," he says:

"The absolute commencement of organic life on the globe I distinctly deny. The affirmation of Universal Evolution is in itself the negation of the absolute *commencement of anything*."

In his "First Principles," he says:

"An entire history of anything must include its appearance out of the imperceptible, and its disappearance into the imperceptible, be it a single object or a whole universe. Hence, wherever we now find being so conditioned as to act on our senses, it must have had an *antecedent existence* under this *sensible form*, and will have a *subsequent existence* under this *sensible form*." * * * "A philosophy stands self-convicted of inadequacy, if it does not formulate the whole series of changes passed through by every existence in its passage from the imperceptible to the perceptible, and again fromt he perceptible to the imperceptible. If it begins its explanations with existences that already have concrete forms, or leaves off while they still retain concrete forms; then, manifestly, they had preceding histories, or will have succeeding histories, or both, of which no account is given."

The only comment we wish to make just here is, that if "every living organism pre-existed with all its parts and organs preformed whole and entire in a sensible form from a beginning, or from a No-beginning; and if no thing is really produced in the living world, but merely unfolds, expands, and develops that which pre-existed in a sensible form in the imperceptible, and will have a subsequent existence under this sensible form in the imperceptible," then, not only is there no such thing as generation, or death, but Evolution in the Darwinian sense would appear to have no foundation, and his theory of the origin of species by evolution, transmutation and heriditary transmission, falls to the ground, because, organisms already pre-existed in the germ state whole and entire from all eternity, or as Christian Philosophers say, from their creation. In either case, if all living organisms existed, whether potentially or actually from a

beginning or from a No-beginning, they were not *caused* by Evolution; they merely unfolded, and developed that which previously existed. Thus the acorn, the germ contains all the parts of the oak tree, and must have existed, primarily, before the tree. This tree has not been transmuted nor evolved from some other germ, say, that of a sea-weed, a fern, or a potatoe.

The size of the object matters not; not one atom in nature can change its essential constituents. One atom of matter, in all which constitutes matter, is as much matter as a whole universe. One atom of carbon is as much carbon as a mountain of it, and can never be other than carbon. We might as well attempt to create or destroy an atom of carbon, as to attempt to create or annihilate a planet.

Scientific chemists tell us, that throughout all combinations, all transformations, there is something in all atoms of matter which perseveres and endures under every appearance of change, and this *something* is its fundamental essence. Such being its nature, it is naturally indestructible and divisible for ever. Consequently, there can be no annihilation. Balmez, the celebrated Spanish Priest, speaking as a philosopher, of the centre of gravity, presents indestructibility and divisibility in these words:

"Do you see this molecule, this little globe of infinitesimal diameter, the smallness of which the imagination cannot represent? Make it smaller by dividing it for all eternity in decreasing geometrical progression, and you will always be coming nearer to its centre of gravity without ever reaching it. Nature will never fail. The limit will ever retire from you, but you will know you are approaching it. Within this molecule is what you seek. Continue to advance; you will never reach it. What you want, however, is there. Continue to divide. There is something left yet."

Gentlemen, as you cannot have in a whole what is not contained in its several parts, then, of course, every atom which is divided and separted from an infinitesimal globe of matter, each fractional part has its own centre of gravity, possesses the same essential elements as the whole globe, and no other elements. However small this something which endures through all, may be, it is as much matter as a whole globe. An atom of hydrogen is as much hydrogen as a gallon of it. Now, we desire that you remember these facts in nature, when we come to Evolution and Transmutation.

Some of the Many Supposed Origins of Life.

As we are now collecting the materials, the philosophical bricks with which to build our philosophical edifice, we had better collect the most important one, Life, and show you where we philosophers get it from, and how well we philosophers agree as to its origin. So, first, let us call on Prof. Huxley and hear what he has to say.

In his "Physical basis of Life," he says:

"The distinctive properties of living matter is a complex compound of carbon, hydrogen, oygen, nitrogen, and a large proportion of water; forming what is known as *protoplasm*, and owes its properties to the nature of its molecules. Hence the term 'The matter of Life.' * * * "Even our thoughts and expressions are but the changes of *molecular action* in this matter of life, which is the source of our other vital phenomena."

We wish to observe here *en passant*, as we did upon the divisibility of matter, that as you cannot have in a whole, what does not exist in its several parts, then, this "matter of life" must have existed whole and entire in each separate and distinct fractional part of Huxley's compound. Its complexity cuts no figure in the case. The atoms of hydrogen and oxygen which go to form water, are either hydrogen and oxygen themselves, or they are not. If they are hydrogen and oxygen, they are substantially distinct from the atoms which constitute nitrogen, mere association cannot give them *new specific natures and qualities. No thing* can be *other than itself.*

So, if Prof. Huxley, by mixing up four or five different elements of matter, or molecules, can make something which did not pre-exist, he would, *ipso facto*, be creating, and, at the same time, be annihilatiing the Self-existence theory, which cannot avoid Mr. Spencer's logical conclusion, that "Life, nor anything, ever had a beginning." Mr. Spencer clearly saw this, and, therefore, makes no attempt to evolve life, but contents himself by showing in what life consists and how maintained. He says:

"The broadest and most complete definitíon of Life will be *the continuous adjustment of internal relations to external relations.*" * * * "While it is *in* the continuous production of such concords or corespondences that Life consists, it is *by* the continuous production of them that Life is maintained."

Mr. Wallace says:

"We may admit with Huxley, that 'protoplasm is the matter of life,' but we cannot admit that protoplasm is the primary source of sensation and consciousness, or that it can ever of itself become so."

Now, let us hear from our knotted and linked vortex ring philosopher, Sir William Thomson. He says:

"Dead matter cannot become living matter without first becoming under the influence of matter previously alive. I am willing to adopt the scientific article of faith, that life proceeds from life; but I do not agree with Mr. Huxley, that 'Life came from atoms or carbon, hydrogen, etc., etc.;' nor with Mr. Spencer, that 'everything comes from the molecule.' I think that the origin of life may be attributed to falling meteors, which brought with them, from other planets, the germs of living organisms, and from these germs, all the plants and animals with which our world is now covered, have been derived."

If Sir William is right in his theory of the origin of the different species of plants and animals, Mr. Darwin must be very far out in his "Origin of Species;" because, if the germ of a huckelberry-bush should get on a meteor, it would not be likely to evolve into a squash; nor if the germ of a man started with a tail, would he be likely to "friction it off, sitting" on the meteor, during its journey from some other planet.

Were we not so much in love with our own theory, we should be apt to adopt that of Sir William, in preference to Mr. Darwin's, or even that of Prof. Haeckel, who tells us, that

"Our most ancient progenitor was a shapeless lump of mucous, whose form value was not even that of a Cytod."

For if this be so, the purity of our blood and the respectability of our ancestors, would merely depend upon the size and quality of a shapeless lump of mucous, and not upon that which Mr. Darwin tells us, of a hairy, ear-wagging, tail-losing, beer-stealing, brandy-drinking, mud-throwing, and, probably, tree-climbing, anthropomorphous ape.

We desire to recall to your minds what we have already stated, that Prof. Huxley says: Plato, Shakespeare, Newton and Raphael, once existed potentially in the fires of the sun;" also, that Prof. Draper agrees with him, saying: "Life comes from the sun, the dispenser of Life and Light." But Prof. Draper forgot, we suppose, what he had already said in another part of his work:

"Nothing can live in a temperature higher than boiling water. No organic process goes on below 32° Fahrenheit, or above 212° Fahrenheit."

Further on, again forgetting, he says:

"The sun being an incandescent fog or gas, envelopes an incandescent liquid or perhaps a solid."

And still, a little further on, when he is trying to prove something else, he says:

"In the infinity of worlds, the conditions are such that not one may be the abode of life. The physical conditions under which life is possible, are so numerous and so strictly limited, that the chances are millions to one against it, and *impossible in worlds of heat or vapor.*"

"Prof. Huxley, Kant, Sir William Thomson, and many others tell us the same. They tell us, that "all stellar and planetary components of the universe are, or have been, gaseous." So we are inclined to be a little sceptical about life coming from the sun or from some other planet. Prof. Yag has already shown us that old Von Baer was too wise and wary to seek for life in a gaseous vapor, he, like a prudent philosopher, waited until our world was cold, and in a condition to raise a dust, to be beaten about by the weather, for he says:

* * * "It was the same thought which caused the weather—beaten dust on the surface of our metalic planet to *spring forth into living forms.*"

After stating that "Life comes from the sun," we do not see the consistency in Professors Huxley and Draper, saying, that they do not mean that life exists as an entity in the body of the sun, but is produced on the earth by the action of its heat upon certain substances which exist under some certain peculiar conditions on the earth; because, if a thing is not in a place it cannot come from that place. If the essence, the vital element, Life, does not exist *in* the sun, its rays, after travelling 95 millions of miles, cannot be the *cause* of something which they did not intrinsically possess, as a cause must contain all that which is contained in the effect; there can be no effect without a cause—no cause without an effect. The vital element, Life, exists in the sun, or it does not. If it does exist *in* the sun, then, life can exist in a fiery-fluid. If life does not exist in the fluid we call *light*, then, neither Huxley nor Draper can produce

it from compounds of inert, dead, earthy matter upon which this fluid has rested. There is no escaping the alternative. Life either always *was*, or it was created by an external agency.

Whether or not any of these philosophers have discovered the actual origin of life, it is evident we have discovered, that they all possess the element of the condition *sine qua non* of human cognition—that of contradiction; not only of each other, but of themselves. But we will take it for granted that there exists such a phenomenon, such an existing something, Life, not minding, for the present, how or where it came from, but proceed on our way to show what curious antics it performs when in the different kinds of living things. But we must first get the things, the organic structures, and these, as well as the inorganic, we must get from the

Molecules.

In the first place, you had better try your powers of imagination to picture to your minds the size of a molecule, and how many it takes to form any object that can be seen by the unaided human eye; for Loschmidt and Sir William Thomson tell us:

"From considerations derived from the thickness of soap-bubbles, about two million of molecules of hydrogen in a row would occupy the space of a *millimetré;* and two hundred million million million would weigh a *milligrammé.* The average distance between contiguous molecules is less than the hundred millionth, and greater than the two thousand millionth of a *centimetre.*"

Prof. J. Clerk Maxwell tells us:

"Molecules are physically independent of each other; and it takes two million of molecules to form the smallest living object that can be seen under the microscope. A microscopic *germ* is capable of developing into the *highest organized animal.* Another developes a *totally different* animal, yet amply sufficient to form the hereditary *characters* of every organ in the body, and every *habit* from birth to death. Molecules *differ* from each other; each kind being assorted into *sets;* they were never born and *never die;* they had no progenitors and they leave no offspring."

Before we build our edifice, gentlemen, we need a few more bricks; so we will get one more from the Biological brick-yard of Mr. Spencer. The inscription on this brick is, that:

"All organisms are built up of certain highly complex molecules. Each organism being built up of *molecules peculiar to itself.*"

Leibnitz tells us:

"The whole universe is composed of monads. They are the atoms of nature; the element of things; metaphysical points, or rather, spiritual beings, whose nature is to act. They possess something analogous to feeling and appetite; and knowledge has been freely given by the Creator to the monads. They differ from the atoms of Democritus and the Materialists." * * * "An atom is only an infinitesimal part of an element, and combined constitutes a molecule by chemical force; each being *different* from his neighbor."

Now that you know what a molecule might probably be, let us see what it has already done, and what it is now doing in forming organisms.

According to Mr. Darwin's sense of Evolution, his theory affirms:

"That all organisms, namely: All species of animals, all species of plants, which have ever existed or still exist on the earth, are derived from one single or very few single forms, and that they have developed themselves from these in the natural course of a gradual change."

So far as the basis of Mr. Darwin's theory of Descent, Filiation or Transmutation is concerned, Lamark and Goethe taught this at the beginning of this century. Mr. Darwin's additions of Rudimentary organs, Reversion and Natural Selection, we shall examine in their place. But let Prof. Winchell tell us how this gradual change took place, by which these different living things and their organs have been produced. He says:

"First supposing Eozōōn to have been an animal; conscious life was ushered into existence in the form of an animated jelly. The next fact, when the vertabrate structure first appeared in the skeleton of the fish, that skeleton simple and unpromising as it was, has since evoked into reality, reptile, bird, mammal, and man existed potentially in the primitive fish. Modification has been wrought out in succession and in progressive derivations, from the ichthyic type. The pectoral fin of the fish became the fore-leg of the saurian; the wing of the pterodactyl, and then of the bird; the fore-leg of the fleet deer; the climbing-squirrel; the digging mole; the paddling whale; the prehensolocomotive arm of the monkey, and then the instrument to execute the behests of the intellect of Man."

From this, and Mr. Darwin's production of all species of animals and plants, from one or very few single forms developing themselves in the course of a gradual *change*, [assuming, of course, that the forces or laws which affected the cosmic vapor were so absolute, constant and uniform, that they were compelled to produce everything that has ever existed, or ever will exist,] is what caused Prof. Huxley to say :

"If the doctrine of Evolution be true, the world lay potential in the cosmic vapor, and a sufficient intelligence could at that time, during the existence of the cosmic vapor, have predicted what would be the Fauna of Britian in 1869."

Also justifies Mr. Darwin in saying, that :

"The close relationship and grouping of species under the natural system, is utterly inexplicable on the theory of Creation."

Prof. Huxley saw, that without the existence of some power to cause change in this cosmic vapor, it would remain a cosmic vapor for ever. He also saw, if Evolution be not endowed with absolute arbitrary and uniform powers, that it would be impossible for any such intelligence to exist which could have predicted, during the time of the cosmic vapor, what would be the Fauna of Britain in 1869. But by endowing Evolution with these qualities, it becomes explicable how that the atoms of a fiery-vapor were compelled to evolve, trnsmute, or naturally select, until they produced animalcules, and continued the process until these infinitesimal aggregations of living matter, produced the Fauna of Britain in 1869.

Of course, while this would conduct us back to a primitive incandescent vapor, in which Evolution philosophers may claim that every physical event existed potentially, still, it does not explain the ultimate *cause* of anything. Were are seeking an ultimate cause, our reason would demand an answer to the question. What were the antecedents of the cosmic vapor? And it will never be satisfied until the answer is given, because, it cannot rest upon the foundation of Chance. And, as Evolution, in any sense, is not causation, the reason will not accept it as the primal power which has produced the visible universe and all the varied manifestations of nature.

You must remember, gentlemen, that in the order of possibilities, there can exist no power, no agent that can *cause* that which is absolutely *impossible* to become *possible*, thus we use the term, *Potential*, which means: being or existing in possibility, not in act, so, if you keep in your minds the word *Possible*, that is, that it is possible for a thing to *be*, yet, in what we call actual existence, may *never be*; then, you will be enabled to understand what Prof. Haeckel means, when he says:

"The number of *potential* or possible individuals existing in the germ state is much larger than the number of real or actual individuals which do live simultaneously on the earth's surface." "* * * *" "The *potential* or possible exists in the primary molecules for the existence of every living organism, should the aggregation of its *peculiar* molecules take place. Hence the saying of St. Thomas: 'Plato might have never been born, although the possible was there in primordial matter.'"

Now, mark! "The world lying *potential* or possible, in the cosmic vapor, and a sufficient intelligence being able, at that time, to predict what Fauna—what kind of cows, horses, dogs, etc., etc., there would exist in Britain in 1869." Mark! "The number of potential individuals; their actuality taking place should their *peculiar molecules aggregate.*" Mark! The monads of Leibnitz, "having *knowledge;* possessing something analogous to *feeling* and *appetite.*" Mark! What Mr. Spencer says: "Each kind of organism being built up of certain highly complex *molecules* peculiar to itself, and are *compelled* to fall into the structure to which they *belong* by the environing forces acting on them;" also, "the appearance of all things out of the imperceptible, and their disappearace into the imperceptible, be it a single object or a whole universe," and then, you can understand how things come from *potentiality* into *actuality*.

Let us apply clauses two, three and five of our theory to these teachings of philosophers. For example. Let us take Plato. He existed potentially. His "time and season" had come. His "peculiar molecules aggregated." He invisibly *was*, and he came visibly to *be*. The primal something which constituted Plato, and the primal something which constituted his dog, his pet rabbit or his walking-stick, were all separate and different somethings, and could not possibly aggregate with each other, as molecules can form only such individualities as their *peculiar*

kind enable them to form. Thus the molecules which formed Plato's dog, his rabbit or his walking-stick, could not form Plato, or he might have been a dog, a rabbit or a walking-stick. Each of these separate objects existed in possibility from a beginning or from a No-beginning, or they could never have been. No evolution, transmutation or heriditary transmission could have changed these individuals into other than what they were when existing in potentiality. When we get to *Growth*, we shall show you that there is no such thing as Growth, but that after each separate individual object comes into actual existence, it is by the aggregation only, of the molecules belonging to each individual, that increases it in size, weight, etc., etc.

Further, let us take Plato's great brain, and see if it was transmuted and evolved. On our theory, Plato's own peculiar brain-molecules pre-existed for him, and of a quality which. we may term, A number-one molecules. Had they been some foolish or ordinary kind of brain-molecules, we should never have heard of Plato. It was his brain which constituted the Plato of whom we know; the same with Cicero, Cæsar, Newton and Shakespeare. According to the Darwinian process of evolution, it would have taken trillions of ages to evolve such brains as these men had, and if, as Prof. Maxwell tells us, that "none of the processes of nature since the time when nature first began, have produced the slightest change in the properties of any molecule;" and if, as Mr. Spencer tells us, that "each organism is built up of certain highly complex molecules, *peculiar to itself;*" and Huxley, that "our thoughts, feelings and sensations are the result of molecular action," then, the specific and peculiar molecules which aggregate and form the brains of each separate individual, must have existed somewhere. They cannot come from nothing, neither can they aggregate and form the brain or increase the size of any organism, except that to which they belong.

So, if what these philosophers tell us be true, it sustains our theory, but destroys Evolution in the Darwinian sense; because it has not required millions of generations to gradually evolve, transmute an individual—say Plato or Cæsar—from an animalcule through worms, fishes, seals, and so on to the monkey, up to such individual. Besides, the peculiar molecules which in

some future time will aggregate and form some future Plato, cannot possibly form a horse or an oyster, but that particular individual only.

From the premises, this is the only conclusion to which the reason of man can arrive. One kind of molecules cannot transmute into another and different kind. They never change their fundamental essences. If they could, they would become something which was *not*, and, like Prof. Haeckel, "we should be driven to admit Creation by Fiat."

Let us test this further by the science of Physics, and see, if clause number one of our theory, is not sustained. The science of physics tells us, that every natural body is formed of molecules which are of different kinds and essences; some having an affinity, attraction, and some a repulsion for each other. For instance: The molecules of oxygen and those of hydrogen, in a proportion of one to each, form and compose water, and cannot combine with the molecules of fat or oil, as these repel each other. The whole weight of the universe could not crush or force a molecule of oxygen and one of nitrogen into one and the same substance and element. The molecules forming the flesh of birds are different from those which form the flesh of mammals, and fish from both. The molecules of salt and sugar are, by their nature, compelled to form cubical crystals. Each mineral has its own mode of crystalization, and is immediately known by the minerologist of what mineral the crystal is formed. Should a crystal be placed in solution, and then reform, it will produce exactly its own peculiar form, and no other. All the odors you smell, all the gases, heat, cold, etc., etc., are formed by the aggregation of different kinds of molecules. Why is this so in nature? Because, the fundamental essence of things cannot change nor be destroyed. You might as well attempt to create a planet as to attempt to change a particle of hydrogen or other element of matter. The fundamental essence of the molecules which form a crystal of sugar, cannot become those of a crystal of salt or mineral, neither can they become those of a fish, dog, tree or potato. While all this, so far, sustains our theory, it at the same time proves that it has not been by Evolution, Transmutation, Descent, nor Natural Selection; that

these objects have been produced from some infinitesimal beginnings of something else, up to these perfections.

This arbitrary crystalization in nature is a Gordian Knot which has troubled Evolution philosophers very much. It is an astounding fact, that minerals under all conditions, all combinations and apparent destruction by the chemist, retain their identity. It is a wonderful fact, that if, together, several different kinds of minerals be liquified, either by acids or fire, each kind, will, under favorable conditions, resolve itself into its original element. The molecules of each will rush together, and again form their exact and peculiar crystals. These being ascertained facts, their identity, like every other phenomenon when it presents itself, has to be accounted for. So, Prof. Huxley makes the attempt. He cuts the Gordian Knot, but at the same time, cuts the throat of Evolution and Transmutation, by getting minerals to be the descendents of atoms which inhabited a special part of Kant's gas-filled universe. He says:

"Mineral identity may be explained by applying to minerals that of descent. That is, by considering such similar forms as being descendents of atoms which inhabited one special part of the primitive nebulous cosmos, each considerable space of which may be supposed to have been under the influence of somewhat different conditions."

Mark! that minerals may be the *descendants* of atoms which inhabited some special part of the nebulous cosmos," and see how Huxley agrees with Prof. Haeckel, who says:

"All natural bodies are equally animated; the distinction which has been made between animate and inanimate bodies does not exist. When a stone falls to the earth, or, when in a solution of salt, crystals are formed, the phenomenon is neither more nor less a manifestation of *life*, than the growing plant, or the propagation of animals, or the activity of the senses, or the perception or formation of thought in man."

Just here, we shall make no special comments on these foregoing facts and suppositions, as we shall meet with their consideration as we proceed; but so far as we have gone, we are nearly prepared to see if we cannot account for the existence of the world, and everything in and on it, in a more probable way than that of Messrs. Kant, Spencer, Darwin, and other philosophers.

As everything in nature is as Prof. Haeckel says, "governed by law," and as many of the laws which now govern and control things did not exist at the time of the cosmical vapor, we had better let Mr. Spencer tell us where these new laws came from. We have given you these quotations before, but we need them again for the purposes of this lecture :

"When the first womb of things was pregnant with all the future ; when the binary compounds of matter gave rise to new relations, together with their appropriate laws ; when throughout the whole process of evolution, as often as matter acquired a hitherto novel-state, or entered into new and novel relations, so often would non-existent or even impossible laws become at once possible and necessary." * * * "Force made the molecules aggregate so as to form the Universe, the world and everything in and on it. The materials were there. It only wanted the necessary combinations."

When we come to the details of Evolution and Natural Selection, we shall find these philosophers applying these non-existent laws, and producing the big brains of the Englishman, their Gaucho-like character, and England's wealth out of cats ; our minds from the underside of a jelly-fish ; fishes walking ; grasshoppers fiddling ; man, first out of charcoal and worms, and, afterwards, his body, soul, and spirit, out of a big hairy fellow with a tail and wagging ears. Also, how hunger, thirst, language, religion, love, hate, morality, rascality, an honest politican, a modest artist, a sane poet, and an evolutionistic philosopher, were all evolved and naturally selected through these laws. We say, when we come to showing you all this, you will not wonder, gentlemen, at hearing Prof. Haeckel tell us, that "Darwin's theory of Descent rises higher, and is a greater discovery than Newton's discovery of gravitation."

Higher ! Of course it is higher. There would have been no Newton to discover gravitation, had not Mr. Darwin evolved him out of that hairy fellow. Neither could he have made the discovery, had not Mr. Spencer's Force and new laws compelled matter to tend to a common centre and thus have evolved gravitation. Higher ! Why the impossible, superlative, altissimus, with excelsior piled on top, is not sufficiently high to express the altitude of Mr. Darwin's discovery. It is almost as high as the Professor's own discovery of "spontaneous generation," which

is the bringing into existence a living thing that had no father nor mother. We need not quote all that Prof. Haeckel says; but he winds up by telling us, that

"Life, its cause lies essentially in the physical and chemical properties of a simple, indivisible, elementary substance, namely, *Carbon*."

You know, gentlemen, that this is the pure combustible base of charcoal. This discovery takes the philosophical wreath from the brow of Prof. Huxley, placed there after he discovered "protoplasm;" also from that of Sir William Thomson after his finding "life on the meteors;" from the brow of Mr. Spencer, after proving that "life consists in internal relations being in accord with external relations;" from the brow of Von Baer, when he found that it was the "weather-beaten dust on our metallic planet which sprang forth into living forms," and strips from the brow of Prof. Winchell, the wreath he gained by "ushering into existence an animated jelly;" while Prof. Clifford would be as bald of laurels as his jelly-fish is of Mind on its *upper* side.

The Jubal Theory for the Origin of the World and Everything in and on It.

Young gentlemen, having now gathered a sufficient number of philosophical and hypothetical bricks, we will commence to build our theoretical structure, and endeavor to show you how the world and everything in and on it came into actuality, or if you prefer, was formed, and let you judge whether or not our structure does not rest on true philosophical principles, which are never at variance with nature. We desire that you keep in your minds these three undeniable facts:

First: That molecules exist; are all different from each other; are assorted into sets; some having affinity, attraction, and some repulsion for each other.

Second: That no object visible or invisible, can be formed until its own specific and peculiar molecules aggregate.

Third: That the *potential* or possible must exist, else, that which actually *is*, could never *have been*.

To search into nature, and the reason of things; and endeavor to discover the cause of all phenomena in nature, is the

object of philosophy. And as all theories must have some starting point, some ultimate foundation whereon to rest, we have selected the theories of Kant and Spencer, as the foundation of our theoretical structure, in so far, that we accept the Supposition, that the universe was once filled up equally full of a single homegeneous mass of atoms; that, somehow, these atoms became heterogeneous, and first formed molecules of different kinds and essences; that these molecules got to moving, segregating and aggregating.

We shall not hypothesize for the purpose of getting behind this condition to, perhaps, a cold, motionless chaos, or something else, it matters not what, but, at any rate, there were no worlds during any of these stages of these molecules of matter. Neither shall we enquire what caused the atoms to combine, nor the molecules to move, but take it for granted that they did move and began segregating and aggregating according to their particular and peculiar kinds and sets; and in order to show you how from this primal something, other philosophers have formed our world, we cannot do better than to give you Prof. Winchell's clear and terse description. He says:

"The present condition of the world is one which has been *assumed* from an ancient state of igenous vapor. In the progress of its cooling it has existed in an infinity of intermediate states. At one time it was a fire mist; then it was a globe of molten liquid; incipient incrustations succeeded, and solidification began at the centre; at a later period it was enveloped in clouds of watery vapor, and rains desended to fill a universal ocean; then primitive wrinkles in the crust emerged into continental germs. As cooling and shrinkage continued, the series of surface oscillations upraised mountains, developed continental germs into continents, and shaped the long fore-shadowed features of the lands. After this, the world was covered with verdure, and myriads of organisms came into existence."

Now, let us go back to the time when the matter of the universe had formed into molecules, say, to the time when Mr. Spencer's Unknowable adopted a mode and set Force to work to carry it out.

The first and principle part of this *mode* was to produce Motion, in order to segregate and aggregate these molecules, consequently the first set of molecules which commenced moving, were the igneous vapor molecules; then the fire-mist molecules began

to move; next the molten liquid molecules began to move, and were aggregated by Force into worlds or globes of molten liquid, of which our world was one, and to which we shall confine ourselves.

Now, as Prof. Haeckel tells us, and Geology bears him out, that the "inorganic crust of our earth shows evidence of being different at every period of its formation," let us, on our theory, see how at these different periods, these different formations were produced. After Force had caused Motion to aggregate the molten liquid molecules and form our world into "a globe of molten liquid which looked like a gigantic drop of melted metal," it next acted on the granular crystalline, felspar, mica and quartz molecules, aggregating these upon this globe of molten liquid, thus forming the plutonic rocks and granite crust around the molten liquid molecules. These rock molecules were cold, and of such a nature, that the molten liquid molecules could not liquify them; consequently, when a sufficient number of them had aggregated so as to entirely cover the molten liquid molecules, the outside of our burning world began to cool somewhat. And ever since that period, these rock molecules have imprisoned the molten liquid molecules, thus preventing them from getting back whence they came, except a few which have, and do, escape out of volcanos.

The next period in the formation of our earth, was when the mineral, chemical, silicon, carbon, sulphur, chlorine, phosphorus and the sodium molecules had come, together with the iron molecules which constitute the coloring matter of our world. None of these could come until the conditions were fitted for them.

At this stage or period of our world's formation. from its internal heat, it was still in a very hot condition, so much so, as to liquify the metallic molecules, such as gold, silver, lead, etc., etc., causing them to settle down in the different openings, or veins in the rock molecules, thus forming, what we term, "mineral and metallic deposits." During this same period, when all the various kinds of molecules which encircled and imprisoned the molten liquid molecules, were in a soft and pliable condition, it was then when the molten liquid molecules kicked up such a fuss, rolling, surging and pushing in their effort

to get out, that they "wrinkled the earth's crust, pushed up the mountnins, and hatched the continental germs."

Notwithstanding the change in her configuration, our earth was still red hot, and shining like a drop of burning metal, when a new period, a new condition arose, and she entered into new and novel relations. Some oxygen and hydrogen molecules having aggregated, and coming in the direction of our earth, settled around it in great quantities; and, notwithstanding these first ones were dissipated by the intense heat, they continued coming in such vast numbers, and, by joining together, made the rain which fell in such torrents on the earth, as to overcome the heat of its crust, and "fill a universal ocean."

How many different kinds of molecules of matter aggregated and formed our earth, we know not; but so far as is known, about 65 simple, elementary kinds of molecules go to make up, as some philosophers say, this ill-designed, ill-constructed, miserable abortion of a world. And if you look deeply into the subject, and take its past history of hurricanes, floods, fires and eruptions, you will probably agree with Mr. Spencer that "a more satisfactory arrangement might have been adopted."

The aggregation of the different kinds and sets of molecules on the earth at these different periods, accounts for the different formations which the geologists now find, and shows us how, as Mr. Spenecr says:

"Force made the molecules aggregate so as to form the universe, the world, and everything in and on it. The materials were there, it only needed the necessary combinations."

Now, Evolution in the Spencerian sense, could not have brought about what we have stated, and what is claimed for it, as by this process, the different kinds of molecules, acting, combining and transmuting with each other, must have produced from a gaseous vapor, all the different species of organic and inorganic objects of which we now know; while science tells us, that no molecule can change its fundamental essence; that all bodies, animate and inanimate, are formed of molecules of different kinds and nature, yet, still each molecule is separate and distinct, and when apparently changed or destroyed, will, under favorable conditions, resolve itself into its original element. If this be true, then the molecules of matter composing this mol-

ten liquid, did not transmute and evolve the plutonic-rock molecules, nor these transmute and evolve the mineral, metal, chemical, etc., molecules; for all of these are composed of different elements of matter-molecules, which once were not, but now are, resting on the plutonic-rocks. Therefore, prior to this lower formation, where were these different kinds and sets of molecules? They must have been existing somewhere, were composed of their own separate and specific elements, and could not come from nothing. Then, where were they? They were floating in the great expanse of the universe, and had not yet reached our earth.

To account for all phenomena, the world and everything in and on it, scientists and philosophers claim, and are driven to this position: that all the organic and inorganic substances, together with their essences, were in the fiery vapor, and afterward held in solution in the molten liquid. Admitting that some metal, chemical or mineral molecules had gotten into the molten liquid, certainly the oxygen and hydrogen molecules could not have done so; and even if some of these did, the "life-matter" and "mind-matter" molecules certainly could not; for, as yet, no scientist or philosopher has gone so far in scientific or philosophical lunacy as to imagine, that he could live and philosophize in a temperature above 212° Fahrenheit, and this molten liquid was hundreds of thousands times hotter than this.

Let us take the oxygen and hydrogen molecules which form water. At one period, none of these were on or around the earth; could not be while it was a glowing ball of fire, nor when the rock, etc., etc., molecules had formed a somewhat cool crust. Then these questions arise: where did they come from? If during the past time they were held in the molten liquid. How were they released? If they were evolved or produced from the crust of the earth, what portion of its constituents produced them? None. Then, where were they? They were existing somewhere outside the earth, and had not yet reached it, and might never have done so.

If, as Prof. Huxley suggests, "that minerals are the *descendants* of atoms which inhabited some *special part* of the nebulous cosmos;" then, had none of the offspring of these atoms ever left that part of the cosmos, or never came in the direction of

our earth, we should now have no minerals upon it. If "each and every object is formed only when its peculiar molecules aggregate:" if, "since the time when nature first began, there has not been the slightest *change* in the properties of any molecule;" then, the different species of these objects have not been transmuted nor evolved from something else. We shall present this more fully when we come to showing, that when organisms disappear by burning, decaying, etc., their molecules never assume another form under their changed condition of existence.

The Origin and Formation of all Living Things and Species of Things on the Earth, According to the Jubal Theory.

Gentlemen, as we have the earth formed, and a large portion of it covered with water, but, as yet, no living thing existing upon it, we will endeavor to show you how, by the aggregation of new and different kinds and sets of molecules at different periods, there arose new conditions, and the earth became fitted for living things. Also, how, at these different periods, the molecules forming the organisms of plants, fish, and flesh, were not produced from the earth, but that they came from somewhere else in the universe, and had they not existed in all their essential elements outside the earth, there would never have been a living thing upon it, no more than there is now on the fossilized moon.

The molecules which aggregate and form living organism, possess more sense than you might suppose. Most philosophers have endowed the "life-matter" and "mind-stuff" moledules with sensation and some degree of mind. Leibnitz says: that his "monads are beings possessed of knowledge, containing something analogous to feeling and appetite, and whose nature is to act." Prof. Clifford endows the molecules which aggregate and form film on the underside of the jelly-fish with Mind, and calls them "Mind-stuff molecules." Huxley has formed "life-matter" by a combination of molecules, and, with Mr, Spencer says, that "mind is the result of their action." If the molecules which aggregated and formed an Eozōōn were animel molecules, then Prof. Winchell says: "Life was ushered into existence in the form of an animated jelly."

So, then the molecules which aggregate and form "life-matter" and "mind-stuff," either could not, or had sense enough not to attempt to come on the earth when it was in a molten liquid, or, even in a less heated condition. They waited until the oxygen and hydrogen molecules came, and formed the rain, which cooled the primitive wrinkles in the crust. We say waited—they were compelled to wait. Even to-day, these molecules cannot aggregate and act, except under proper conditions, as we shall see further on.

PROF. CREDO.—I wish to say here, Jubal, that while your theory, so far as you have gone, is opposed to Evolution in the Spencerian and Darwinian sense, it is not repugnant to Evolution in the sense as taught by Christian philosophers, nor to the hypothesis of an existing, intelligent, external agency. And further, we desire to say, that it will not do for philosophers, like Darwin, Spencer and Huxley, to claim for their Evolution, a power or cause, which has brought about natural changes of such an absolute and arbitrary character, of such a constant and uniform nature, that "an intelligence could have predicted at the time, during the existence of the cosmical vapor, what would be the "Fauna of Britain in 1869." Because in order to bring about these results, these changes would have to have been such, as only an intelligent power could inaugurate.

If the world and the Fauna of Britain were evolved in the sense as used by these philosophers, from this gaseous vapor by its own blind act; or if Force be only a *mode* of an Unknowable Reality; and the motion which Force gave to this primordial matter was not given in accordance with a design to accomplish certain ends, then, the physical existence of the world and the Fauna of Britain are the result of blind chance, which, if the human mind could picture such a condition, did, after an infinite number of trials and fruitless combinations, at last accidently hit upon order, and produced Shetland ponies, Berkshire hogs, Southdown sheep, Messrs. Spencer, Huxley and Darwin in the 19th century,

But, on your theory, Jubal, it is possible that such an intelligence could have existed which possessed reason, could have chosen, designed and had the power to cause the primordial, inorganic atoms, or molecules to aggregate at different periods

and form the world, thus producing conditions under which organic molecules could aggregate at different periods, and bring into actual existence the different species of living things. This intelligence would have known at that time, during the existence of the cosmical vapor, at what period these conditions would exist, and could have predicted, what would be the Fauna of Britain in 1869.

PROF. JUBAL.—That may be so, Prof. Credo, but our theory has nothnig to do with the existence or non-existence of an external agency, we simply start with the premiss, that the universe, [space] was once filled full of atoms or molecules of different kinds and essences. How they came to be such, we shall probably never know, but with them, we are endeavoring to show in what manner they formed our earth, and have got so far on our way, that it is in a fit condition, so that when the "life-matter" molecules could come and form organisms, they did so, and the first of which the Paleontologists knows, are the *Paradoxides*, as these have left their fossils in the strata. These *Paradoxides*, these first aggregations of living matter, were, of course, formed of their own peculiar molecules, which came on the earth at that period of its formation, and are found in the bottom of the lower Silurian strata. So far as is known, these were the Pioneers of the world, and, like the "'49 California Pioneers," those that are left of them, are now old fossils,

PROF. JUBAL LAMENTS HIS EXPEPIENCE AS A "'49 CALIFORNIA PIONEER."

So far as we are concerned, we are not really a fossil; for when those Silurian fossils lived, it was in a shell of their own, but we find great difficulty in being allowed to live in a shell belonging to some one else. Very few of us foolish "'49 Pioneers" will ever leave any fossilized molecules in a future stratum, unless it be in the stratum of misery, and we are depositing ourselves pretty thick and fast in that direction.

Talk about *Paradoxides* coming on this earth during the Silurian period! What kind of a Sillyurian period do you suppose it must have been, when we "'49" Paradoxes came to California, expecting to find the mountains made of gold, and the rivers full of diamonds? Great Julius Alexander!! Why,

we never got enough to pay the bar-keeper, let alone the grocery-man.

We do not care, gentlemen, to picture to your minds our "'49" California, nor our 65 life experience, for we should lose our self-control. We have a fair average of contentment, and possess no envy; but our name is not Job, nor are we "Patience sitting on a monument smiling at the grief" of any one. And if, while feeding on our cadaverous cheek, the "worm in the bud" has "left his foot-prints on the sands" of the kind of a "*time*" we have had, we think the time has arrived when it should commence to feed on the plump cheeks of those who came since "'49," and gathered what little King Faro Queen Poker, and their Prime Minister, Ginjuggler, have left us. Excuse us, gentlemen, for acknowledging these weaknesses, but we are not to blame, for, as Mr. Darwin says, we "inherited these habits from some ancient progenitor who possessed them in a perfect state." And, although we have possessed them from our birth, they have laid dormant in us for nearly forty years, but when they did "leap into life," they were the strongest and liveliest habits we inherited.

When we get to the Rudimentary and Reversion hypothesis, we shall prove to you, beyond all cavil, that we are not to blame; that we did not acquire these habits ourselves, and could no more have prevented our "poker," "seven-up," and the molecules of our thirsty organ, from running, at certain times, along lines of least resistence, than we could have chosen the time when our molecules should aggregate and bring us into visibility.

How Geology and Paleontology Sustain the Jubal Theory.

We will now show you, gentlemen, how Geology and Paleontology sustain our theory. According to these theories, the first existence of the different species of living things on the earth, was at different periods of its history. And, according to Mr. Darwin's theory of Evolution, they produced themselvss from the earth by a gradual change.

On our theory, the molecules of these different species existed, somewhere in the universe, outside the earth, and it was at these different periods when they first reached it.

We ought to, and suppose we do, know, that there were no fish molecules on the earth during the Lower Silurian period, as the Paleontologist tells us, that these did not get here till the Mesozoic period, nor those of the birds till after the marine reptiles. The frogs, the lizards, the snakes; the reindeers and the three-toed horses; their molecules did not arrive till the Miocene or Eocene periods. The big fellows, the elephant, rhinoceros, bear and hippopotamus; their molecules were still later finding out, that there was a planet upon which they could aggregate, so these did not get along till the Pliocene period. But it might have been, that before this period, there was not yet sufficient plant and other molecules on the earth for them to eat.

The Quadrumana, or monkey, and the biped-mammal, man-molecules, for some reason yet unknown to "those who have not attended," as Mr. Darwin says: "to the recent progress of natural history," did not find their way here till the Post-tertiary or Post-glacial period. It is is said to be somewhere between these two posts, that there once existed a rail or link, now known as the "Missing Link," which bound together the molecules of the monkey and the man. However, since the arrival of the molecules of these two organisms, they have made more fuss, and caused more trouble to natural philosophers, than all the others put together.

There is one thing sure, that Mr. Monkey's molecules were too sharp to come until after the plants and trees covered the earth, and the cocoa-nuts were ripe, and so were those of the man, until the opossum and coon were fat. And although after the man-molecules had come, and were obliged to ride a three-toed horse, in order to get out of the way of the wolves, they did not mind this, so long as the hyenas and bears did not bother them while sleeping together in the caves; for you must know, gentlemen, that Evolution naturalists have proved, that the man-molecules which came on the earth during one of those Post-periods, were the kind which always slept in caves.

Whether the brain molecules which, at that time, aggregated in the man's sensorium, came from the underside of Prof. Clifford's jelly-fish, we know not, but we do know, that they soon made him the "boss" of this earthly plantation. They soon taught him how to keep his "internal relations in accord with

his external relations," and not "symbolized," either. They soon showed him how to pick a flint; fashion a bow and arrow; kill a bear or a buffalo, and how to make a coat of their skins. But Mr. Darwin says, that this was "many millions of generations after he was a big hairy fellow with canine teeth, wagging ears, had a tail, and was, probably, arboreal in his habits." Well, if he was so then, he would be so now; for Mr. Darwin tells us, that "like begets like—the offspring is like the parent." Nature cannot make one thing out of another and different thing. Mr. Mill tells us, that "the consequent must be of the same essence as the antecedent; the effect must contain the same essence as the cause." Bonnet and Haller say, that "no really new formation takes place; there is only an unfolding of parts, all of which have been present, pre-formed and complete, from all eternity." Prof. Maxwell says: "There has been no change in the properties of any molecule since nature first began," and Mr. Spencer tells us, that "molecules are compelled to fall into the structures to which they belong."

These gentlemen are nearer right than Mr. Darwin; because the molecules which form tails are forming them yet, and those which form muscles to wag ears, are still coming; and as to the hairy fellows, there are plenty of these in the universe somewhere. They come along at the right time, and, as we shall show you, aggregate and interpose at the proper parts of each organism.

We shall recall to your minds what Prof. Haeckel tells us, that "the earth's crust shows evidence of having been just as different at every period of its formation, as were the animals then inhabiting it." This geological fact is just what we are proving.

If this were not so, why are not the fossilized molecules of the fish and marine reptiles found in the Silurian strata; those of the three-toed horses in the Mesozoic; the elephant and bear in the Miocene; or the man and the monkey in the Pliocene strata? Where were they? They must have been somewhere. They could not come from nothing, nor be formed by any other kind of molecules. There is no answer to these questions, except that their molecules could not exist, therefore, did not come until the proper conditions existed on the earth. They cannot do so even to-day. The molecules composing organisms which

now exist on the earth, can aggregate and form them only, when the *neeessary conditions* exist. These molecules are all around us, in the air, interposing and adding to all organisms. When plants and animals die out in certain latitudes, it is because the conditions have become such, that their molecules can no longer exist there.

Let us ask: Why is it that the orange is not growing, nor the buzzard roosting in the Arctic to-day? Simply, because the presence of the ice molecules render the conditions such, that the orange and buzzard molecules cannot aggregate there. Reverse the conditions: form your ice-bergs in Charleston and Florida; raise the temperature to a 120 degrees in the Arctic, and the orange will then hang heavy on the trees, while the buzzard roosts on the poles of the world.

A Glance at Mr. Darwin's Origin of Species and Natural Selection.

Young gentlemen, although this is not the place to enter upon Mr. Darwin's "Origin of Species and Natural Selection," still there are some portions of these which you should learn before we proceed with our theory. Therefore, we will lay it aside for a few moments for this purpose.

Whenever Mr. Darwin finds a difficulty, he has a happy way of disposing of it. Finding himself unable to account for the origin of life, mind and instinct, he tells us:

"I will not attempt any definition of instinct. I have nothing to do with the origin of the mental powers, any more than I have with that of life itself."

Forgetting, we suppose, that, with his theories, he is compelled to account for every act performed by all creatures—caused primarly by their possessing and exercising these very mental powers. And we shall find him attempting to account for the origin of the very things with which he says he has nothing to do. However, we will take Mr. Darwin as he is.

Having taken it for granted that the first organisms which existed on the earth were animalcules, either in one single or very few single forms, from these, Mr. Darwin, with his Theory of Descent or Filiation, or, as some term it, Transmutation; either is correct, builds up all the varieties of structure, form, size,

color, *habits*, *instinct* and degrees of *intelligence* of all living things.

Ages ago the Alchemist sought diligently for the Philosopher's stone. They believed in the possibility of transmuting things into forms essentially different, and endeavored to transmute the baser metals into gold and silver. They also endeavored to discover the *elixir vitæ* or the water of life, with which they expected to cure all diseases and prolong life forever. In other words, these ancient Alchemists tried to *transmute* one kind of molecule into another and essentially different kind; but they did not understand molecular physics in the way we understand it. We know, do what we will with different kinds of molecules, that their essential elements remain the same.

Had the molecules which were to form Mr. Darwin, aggregated during the time of these foolish Alchemists, and some of them had tried their skill by experimenting on animated nature, he could have shown them how they might be able to transmute an oyster into, perhaps, a horse, and have declared to them, that "almost any quadruped might be converted into a giraffe" He could have shown them his great discovery of an animated Philosopher's stone, with which he has been enabled to produce all the varieties of living species; develop the animalcule into a mammoth; exhibited to their wondering eyes, his elixir of life—his "Survival of the Fittest"— and pointed out to them the necessary dose which would enable the ephemeron to live, perhaps, an hour, and the dose which would enable the elephant to survive longer than any animal of which they knew. Had these Alchemists clamored for the secret, Mr. Darwin would have told them, that although the secret had been hidden from the prying eyes of mankind since the beginning of things, he had found the key with which he has been enabled to unravel the sphinx-like book of nature, and had found the secret to be nothing more than "the very simple laws of nature;" but, as yet, he had been unable to find the key with which to unlock the secret door of the future, therefore, would:

"Set no limit to the changes of structure, habits, instincts or intelligence which these very simple laws of nature may bring into existence in the course of millions of centuries."

Provided, that Nature carried out these laws according to the *mode* which he, Mr. Darwin, had prescribed.

Had these Alchemists, like some of our modern *Thomases*, any doubts upon the question of the time it would require these simple laws to effect these wonders, Mr. Darwin would, as he has since done, referred them to Dr. Croll's estimate, that sixty millions of years had elapsed since the Cambrian period. and said :

"But that seems a very short time for the many and great mutations of life which have certainly occurred since the Cambrian formations ; and the previous 140 million years can hardly be considered sufficient for the development of the various forms of life which certainly existed toward the close of the Cambrian period."

The Great Necessity of Giving Nature Time in Which to do Her Work.

This question of time, gentlemen, you will find to be a valuable ingredient in that Philosopher's stone. One of the greatest importance to Transmutation and Natural Selection. For as Prof. Draper says :

"To Nature, the lapse of time is nothing—to man it is everything. To Nature, when she is transmuting a worthless into a better metal, what signify a thousand years."

Time, to these questions, are, as preacher Congo says : "like nice cloze, dey cobers a mul'tood er sins." Therefore, we had better ask Mr. Darwin about these sins, and let him tell us, about what length of time it has taken Nature with her "very simple laws," to evolve, modify and produce the great variety of organisms from their original archetype ; that is, speaking of the past, before man began using the modifying process. Because we shall find that man can give old Nature, with all her laws, the start of 23 hours, 59 minutes, and the 999th part of the last divisible fraction of a second, and beat her any day, either on structure, color, habits, or any other quality.

On this question of time, Mr. Darwin answers us in his "Origin of Species," where, for the purpose of showing us how, by modification, the great variety of living things have been produced, uses symbols. He takes A and L to represent the species of a genus and says :

"Let (A) be a common widely diffused and varying species. The variation will be extremely slight but of the most diversi-

fied nature; they are not supposed all to appear simultaneously, but after long intervals of time; nor are they all supposed to endure for equal periods. Only those variations which in some way are profitable will be preserved or naturally selected. These intervals of time may be thousands or more generations. After a thousand generations, species (A) is supposed to have two fairly well marked varieties, namely $\frac{1}{a}$: and $\frac{1}{m}$. The most divergent of these two variations will generally be preserved during the next thousand generations. Then variety $\frac{1}{a}$ having produced $\frac{2}{a}$ will differ more from the parent (A) than did variety $\frac{1}{a}$. We may continue the process for any length of time; each thousand generations producing only a single variety, but in a more and more modifidd condition. Thus, the modified descendants proceeding from the common parent (A,) will generally go on increasing in number and diverging in character up to the ten thousandth generation; and under a condensed and simplified form up to the *fourteen thousandth* generation.

"But during the process of modification, the principle of extinction will have played an important part. As in each country natural selection necessarily acts by the selected form having some advantage in the struggle for life over other forms; so that the descendants of a species will exterminate their original parent species."

Mr. Darwin then goes on with species (L;) carries these up to the fourteen thousandth generation, and says:

"Now, what I have supposed to represent a thousand generations, each may represent a *million* or *hundred million* generations; and these two families or orders will have descended from two species of the original genus; and these two species are supposed to have descended from one species of a *still more ancient* and unknown genus. The changes in a species, or in any individual of a species, natural selection acts exclusively by the preservation and accumulation of varieties which are beneficial to each creature at all periods of its life."

You must note, gentlemen, that Mr. Darwin does not claim, but in other parts of his works explicity disclaims, that Natural Selection *causes*, or in any way *produces* variety; and alleges, that "natural selection confines its operations solely to the preservation of varieties *after* they have arisen." He is compelled to admit this, because Natural Selection, being a part of the process of Evolution, it cannot, therefore, be causation.

You can now see what vast importance time is to nature and to Mr. Darwin's theories, in order to bring into existence something which did not previously exist, for he has adopted the

canon in natural history, *Natura non facit saltum*—nature never leaps. But she had better do so, for if she does not get along faster than she has been doing, we fear that we shall not live till the time comes when the oyster will climb the trees, and the monkey be a candidate for Congress on the opposition ticket.

As we have before remarked, that since man began modifying, he can get along much faster than nature; for in cross-breeding, as Lord Somerville, when speaking of what breeders have done for sheep, says: "It would seem as if they had chalked out upon a wall a form perfect in itself, and then given it existence." Man can also produce any kind of feather in three years, and any desired head in six years on a pigeon; or a whole race of hornless and tailless cattle, tailless dogs, and a race of sheep with such short and crooked legs, that they cannot leap over the neighbor's fence, all in one generation, and what is more, by modification, produce these sheep for this purpose. The fact is, that Mr. Darwin and others, adduce these cases, for the purpose of sustaining their theory of the origin of species by variation; forgetting, we have the charity to suppose, what they have already said on the time question. They should be more careful about this. They should not get things too far apart. They should keep them closer together. In this respect they are like the old planter, who was fond of telling bragging stories about what he had done.

One day, he and some friends were talking over their mint-juleps, and the planter related to them, how once, when out hunting, he saw a deer; and he shot the deer through the left ear and left hind-foot in one shot. The friends to whom he told this, laughed, and said: "Now, come, Bradley! that won't do, that couldn't be done." "Well," says Bradley, "I can prove it." So he calls in old Mose, who always went with him to carry his lunch and rifle; and he says to Mose: "Mose! dind't I shoot that buck through the left ear and left hind-foot with one shot?" Old Mose was puzzled, and wanted a little of Mr. Darwin's "time" for reflection. To gain which, he asked his master, "wedder massa meen de las' time dey wuz out?" The planter said "Yes." "Oh, yas massa!" said Mose, "you did dat fer sho'." Then one of the friends asked Uncle Mose, how could this be done?" "Well, you sees," said Mose, "'twas

a purty warm day, en de flies dey gits ter pester'n dat buck 'bout de yeers; en jes' ez massa let go de trigger, de buck wuz a scwatch'n he lef' yeer wid he left hine'-foot, so de ball went chock troo bofe ob 'em."

After the friends had left, Mose slips in to see his master, and says: "Massa! de nex' time you mus' git de tings a leetle mite clozer togedder." And so, gentlemen, we think that Evolution philosophers must get the proof-links in the chain of their theories a little closer together, or there will be a break somewhere in this chain before its links reach the individuals of a species most "fitted to survive."

No Such Phenomenon as Growth.

Young gentlemen, we will now examine into another clause of our theory, and see whether in nature, there is such a thing as what is commonly called Growth; that is to say, growth in the proper sense of the term, or whether the increase in size and weight of living things, are not brought about by the addition and interposition of the molecules which pre-exist, belong to, and are the *outside* builders of every separate individual thing, after it comes from the germ state into actuality or visibility. We shall then be better able to see upon what foundation Mr. Darwin's theories rest.

Prof. Tyndal says, that "science rejects the outside builder," and when speaking of a massive elm on the bank of a Norman river, under which he and his friend Dr. Debus were sitting says:

"We regarded the tree above us. In opposition to gravity its molecules had ascended, diverged into branches, and budded into innumerable leaves. What caused them to do so—a power external to themselves, or an inherent force? Science rejects the outside builder."

Let us see if this "outside builder" can be rejected. Let us take this giant elm. It started from a germ, no larger than a melon seed. Take all the molecules of earth within which it grew, down to the last fiber of its roots, and count them. Take the molecules composing this tree, count these, and they will out-number the earth molecules a hundred fold, besides leaving intact the same number of earth molecules from which science says the tree came.

Let us ask, how can dead, inert matter, of itself, overcome that mighty power, the law of gravity? Let Prof. Tyndal, in the same peragraph, answer us.

"A low temperature had kept back for weeks the life of the vegetable world. But at length the sun gained power, and life immediately kindled under his warmth. But what is life, and how can solar light and heat thus affect it? Near our elm was a silver birch, with its leaves rapidly quivering in the morning air. We had here motion, but not the motion of life. Each leaf was a mass under the influence of an outside force, while the motion of life was inherent and molecular."

This does not answer the question, it does not account for the mass of molecular matter composing this tree outside the earth upon which it stood, but, by rejecting the outside builder, it was the best answer the Professor could give. Granting that the sun is an outside force, and that the motion of life is inherent and molecular; but neither this outside force nor the inherent quality of molecules can produce 100 tons of one kind of molecules out of 10 tons of another and different kind. Leaving aside the overcoming of gravitation, you cannot draw a bushel of wood and leaves out of a quart pot of earth.

Please to remember what we have already quoted from the most eminent philosophers in the world, and particularly from Prof. Maxwell; because he shows us what constitutes one of Mr. Darwin's animalcules. He says:

"It takes two million of molecules to form the smallest living object that can be seen under the microscope. A microscopic germ develops into the highest organized animal; another developes a *totally different kind* of an animal, yet amply sufficient to form the hereditary *characters* of every organ in the body and every *habit* from birth to death."

Now, according to Mr. Darwin's theory of Evolution, the process by which two million of molecules aggregate and go to make up a single animalcule, a being—so small that we should have never known of its existence, were it not for the invention of the microscope—evolved, transmuted, developed, swelled, increased, *grow* in size and weight, until it reached the enormous proportions, say, for instance, of a mammoth or a whale.

Let us suppose, that one of these little fellows, which we might see wriggling under the microscope, happened to be the commencement of an elephant or even a monkey—they had to

have a starter—for at one time there was not a living being, not even an animalcule on this earth; there was not a "speck of dust upon its metallic surface," large enough to "leap forth into a living form," then these questions arise. How did the mammoth animalcule become so large? Was there an outside builder; did his first two million of molecules swell or *graw*; or, did his molecules, and those of the monkey—only not so many of them—which pre-existed for them, keep coming, and by adding to their already existing mass, increase their size? Let us hear what Prof. Huxley has to say about this. He says:

"The increased size which constitutes *growth* in living organisms, is the result of a process of molecular intussusception, and therefore differs altogether from the process of *growth* by a accretion. The addition of molecules to those already existing is not at the surface of the living mass, but by *interposition between the existing molecules* of the organism."

Now let us hear what Mr. Spencer has to say:

"Growth is the integration with the organism of such environing matter as is of *like nature* with the matter composing the organism. Its growth is dependent on the available supply of such matter. In the specific form, then, it is, that *specific molecules* form by aggregation, the structure to which *they belong;* and they *fall into* this structure by the co-operation of environing forces acting on them." * * * "Organisms are built up of highly complex molecules; each organism being built up of physical units *peculiar to itself.* These molecules arrange themselves into the *forms* of the organisms to which *they belong.*"

Next, let the great Buffon tell us how he grew.

"Innumerable molecule *organiques* are dispensed throughout the world; and alimentation consists in the appropriation by the parts of an organism of those molecules which are analogous to them."

M. Pasteur tells us, that "molecular germs of organisms are constantly floating in the air." "From which fact," says Prof. Huxley, "spontaneous generation has received its *coup de grâce.*"

Now mark, gentlemen, that the molecules which interpose between, and add to those of the already existing mass of the organism, must be of the *same kind* as those of the organism to which *they belong;* and also, to each separate and distinct part of such organism. That these molecules are dispersed throughout

the world, are floating in the air, *fall into*, and build up structures "composed of physical units *peculiar to themselves;*" let us prove from experiments made by the Abbe Spallanzani, who says:

"You can mutilate to an incredible extent; yon can cut off the jaw, a part of the head, leg or tail again and again from snails and salamanders, and yet, each of these types will be produced according to the primitive type. Nature never fails; never makes a mistake; never putting on a fresh kind of a leg, head or tail."

Now, where do these additional and peculiar kinds of molecules, of which each part of these organisms is composed, come from? They are not already in them, or they would have an extra jaw, leg or tail. Sbould a snail and a salamander each lose an organ, it would require a certain number of the peculiar kind of molecules belonging to each organ to replace it. These creatures cannot produce these organs from nothing. Should they *grow* them, they would be adding to the already existing mass in the universe. The molecules of which these new organs are composed, must exist somewhere, and are not evolved by these creatures. This proves our theory so far as that all objects, organic and inorganic, from an animalcule to a world, are formed by the aggregation of the *peculiar* molecules *belonging* to each object at the time when the conditions are such that they can exist in a state of aggregation; also, that that which is called Growth, is not brought about by Evolution. Even Mr. Darwin says:

"The child, strictly speaking, does not *grow* into the man, but includes germs which successfully develop."

What does Mr. Darwin mean by "*develop*?" Does he think tkat each of these germs increases in size? Or that the child contains all the germs which are afterward to develop, until, as a man, he ceases to increase in size and weight? If he means that to develop is to evolve, then, let us see how this would be. Let us take one of his baby animalcules. Now, if not one atom can be added to the already existing mass of the universe, and this baby animalcule should, by any process, other than by the extrinsic addition of more analogous matter, increase in size, and become as large as a mammoth; and if this analogous matter did not already exist somewhere outside the object, then this would

not only be bringing something out of nothing, but, as we have said, be adding to the already existing mass in the universe.

From the testimony we have adduced from philosophers, this mammoth pre-existed, was pre-formed, whole and entire, invisible, in the germ state; whether from all eternity or from a beginning of things. His germ, then, was one set, his own particular set of molecules which formed him, and could form no other object. It is not within the limits of possibility, that he could be other than himself. The essence of a thing is that which makes it what it *is*, and distinguishes it from all else; and its existence is the act which gives being to essence, or that by which an object exists.

Even admitting with Mr. Darwin, that the mammoth commenced with, and was "derived from some one primordial animalcule, some one single form," then, instead of his "developing" additional matter, he merely increased the size of his germ by addition; by the interposition of his own specific and peculiar set of molecules, until they were all used up; then, he stopped growing. The same with the flea. There are just so many flea molecules pre-existing for him, and no more; and he can evolve, develop, jump, and bite, and try to *transmute* the blood he gets out of you, as much as he pleases; but he can never evolve, nor transmute himself into anything else, but a miserable, nasty, jumping, and tormenting flea. And why not? Because he was a flea from the beginning, and will stay a flea till fleas shall be no more. Let us test the origin of this mammoth by the principles of Mr. Darwin's theories. He says:

"Every living thing on the earth which ever existed, or ever will exist, was derived from some one, or very few single forms of primordial animalcule by the law of Heredity; which is, that 'like begets like, the offspring is like the parent.'"

Now, as these animalcules are, as Prof. Huxley says: "divided off into *species*, some so small that one drop of water can contain more of them than there are human beings on the earth;" and as different species, so far as we know, have not, and cannot mingle and produce another and different species, then, of course, these primordial forms were naturally compelled to select the same kind of primordial forms. The flea animalcule could not have naturally selected the mammoth animalcule,

the goose the fox, the giraffe the whale animalcule, or where would the difference in species be by this time?

With all the plausible theories which have been invented to account for the origin of species, and the ingenuity of natural philosophers to give these theories a plausible probability, the doctrine of the permanence of species has never been shaken. Whatever may have been the origin, or however small the germ of each and every individual organism may be, when it comes into visible existence, it can increase its size only by the addition of its own peculiar molecules. Why, you cannot even grow in grace, without something being added. You cannot grow less, without something leaving you. And some persons say, that you cannot grow poor, unless you are honest; nor rich, unless you are a Bank-President, an Alderman, or some kind of an official thief. But, gentlemen, there is one thing sure, you cannot increase in respectability, if you drink and gamble; neither can you grow into a useful member of society, unless you become a lawyer, or join the "California Pioneers."

From the conclusions we have drawn, the origin of species cannot be accounted for by Mr. Darwin's theories of Evolution, Descent nor Transmutation. Neither species nor individuals, whether in invisibility or visibility, can impart an essence they do not themselves possess; as according to the proverb: "One cannot give that which it has not to give." Thus, dogs give by transmission the canine essence, because they have it themselves. They cannot give the feline, because they have it not. Fire can give heat to water, but water cannot give heat to fire, as according to another proverb: "One cannot do what is beyond its nature." Why is this so in nature? Because each object, each organism, is *itself* only, and formed of its own peculiar molecules, which are the outside builders of all bodies on the earth.

What is the Natural Cause of Heat and Light?

Before proceeding further, we desire to give you the two theories which are current at the present time as to the cause of heat and light. One, as taught by Newton, is the Emission or Corpuscular Theory. On this theory, heat is caused by a subtle imponderable fluid, which surrounds all bodies, and which can

pass from one body to another. The entrance of this substance into our bodies produces the sensation of warmth, its egress the sensation of cold. Light is caused by luminous bodies, which emit, in all directions, this substance or fluid, which consists of molecules in an extreme degree of tenuity. Penetrating into the eye, they act on the retina, and determine the sensation which constitutes vision. On this theory, therefore, heat is a substance, and not a form of motion.

The other, and more recent, is the Undulatory Theory. On this theory, the heat of a body is caused by an extremely rapid oscillating or vibratory motion of its molecules. That all bodies, as well as the celestial spaces, are filled by an extremely subtle elastic medium, which is called the *luminiferous ether*. The luminosity of a body is due to an infinitely rapid vibratory motion of its molecules, which, when communicated to the ether, is propagated in all directions in the form of spherical waves, and this vibratory motion, being thus transmitted to the retina, calls forth the sensation of vision. On this theory, therefore, heat is not a substance, but a form of motion which can be transferred from one body to another.

We hold the Emission theory, viz: that heat is a fluid which is emitted by bodies which contain it; that the molecules of which this fluid is composed, say those which come from the sun, are, by some mysterious work of nature, stored up by other molecules which compose all combustible bodies, like those of wood, coal, etc., and, when released, again act on our senses. It is thus that the hot molecnles of this fluid can give heat to water, because they have it themselves, but the molecules of water cannot give heat to a body, because they have it not. Prof. Graham says:

"Send through ice a wave of molecular agitation we call heat, and the ice molecules will give way. Let the heat die away, and the ice molecules will resume their previous aggregation."

In presenting this phenomenon, Prof. Graham has taken it for granted that the undulatory theory is true. But if heat is caused by molecular agitation, by the rapid oscillation of the molecules of bodies, then, in order to form the wave of heat which causes the ice molecules to give way, we would ask: What is agitated? Not themselves? The molecules of water or ice

may oscillate for all eternity, and they can never become hot.

Further. As all bodies expand, increase in bulk, by absorbing heat, they must gain something; and as by radiation of heat they decrease in bulk, they must lose something; this something must be a substance. But, it is said, "that heat increases the distance only between the molecules of a body." But it does not do this with water, water expands on the moment of solidifying, and contracts on melting.

The most intense of all sources of heat is the sun. The cause of its heat is unknown, but it is supposed to be surrounded by a luminous fog or gas, and the amount of heat and light which it annually emits into space, has been endeavored to be calculated. M. Babinet says, and Sir David Brewster approves of it, that

"The sun was once so large as to fill the whole earth's orbit, and it took him 3,181 years to rotate; but, by radiation, he has been reduced, so that now he rotates in 25 days 14 minutes and 8 seconds."

And Helmholtz tells us, that "the sun is now reducing, and will diminish, something like one-twentieth [$\frac{1}{20}$] in the next million years." If this be so, and by emitting his heat, the sun is reducing, he must be losing something. The mere oscillation of his molecules on his surface would not decrease him, as the oscillations could not leave him without molecules to oscillate. This is so conclusive, that Waterston and Sir W. Thomson, who both hold the undulatory theory, have endeavored to account for how the sun is compensated for what he *loses* by radiation. They attribute this to the falling of meteoric stones or aerolites against his surface, as without an addition of a foreign substance, his incandescence would have a limit. This is admitting, that by emission of heat, the sun loses substance.

Of whatever number of molecules of matter he may be composed, they may oscillate for all eternity, but cannot reduce him one atom. If a ray of heat which the sun sends ninety-five millions of miles to us, and which imparts none of its qualities to the medium through which it passes, be not a substance, how can this heat be stored up for ages in all combustible bodies on the earth? These cannot store up oscillations without storing up that which oscillates.

An oscillation, like motion, is nothing in itself, being produced only by a force acting on a body. There must be a body upon which force can act, before it can produce motion or an oscillation. Force without act, is nonsense, and motion or an oscillation, without a body to move, or oscillate, is absurd.

We need go no further in sustaining the Emission theory, that heat is a substance, than to merely show its effects upon a cold, hard, granite rock. Like all bodies, this rock is formed of molecules, which do not touch each other, thus leaving spaces between them, and contain among them no heat, when the rays from the sun strike this rock, then, on the theory, the hot molebules—this fluid—enters the interstices between its molecules, and so heat it as to almost burn ones hand.

Now, on the undulatory theory, if this heat is produced by the oscillations of the molecules composing this rock, how comes it that they never oscillate until the oscillations of the molecules of a body 95 million of miles distant fall upon it? If that which falls upon it be not a substance, but, as by the theory, is a mere oscillation, how can an oscillation, without something to oscillate, come 95 million of miles and oscillate the molecules of a hard granite rock on the earth? We have presented this, as we desire to further show, on our theory, that

MOLECULES WHICH AGGREGATE AND PRODUCE PHENOMENA ON THE EARTH, DO NOT EXIST ON IT, BUT COME FROM SOMEWHERE OUTSIDE.

Let us first take the Glacial and Diluvial events. Let it be granted that these occurred. At each of these events there must have been a sufficient number of oxygen and hydrogen molecules on the earth to cover it, we know not how deep in ice and water. At the Glacial period, there was such a vast number of ice molecules on the earth, that the fluid we call light and heat—the hot molecules from the sun—could not make them give way, Dr. Croll says: "For over two hundred thousand years." So then these questions arise, what was the natural cause of these events? From where came the molecules of the Glacial and the Flood periods? Not from nothing. Not from the centre, nor fnom the surface of the earth. To where has this overwhelming number of oxygen and hydro-

gen molecules gone? Not into nothing; not into the earth, nor into the oceans? For while the molecules of the Glacial and Diluvial periods were on the earth, it was one vast sea of water and ice. They are gone, and, like everything else that disappears, our theory affirms, outside the earth. Should another flood occur, it will be because other oxygen and hydrogen molecules, as they move through space, will strike the earth, and again overwhelm it.

That different kinds of molecules, in immense numbers, traverse the space of the universe we know. Witness what history records, of what is known, as the "dark days," when some kinds of molecules of matter, during their passage between us and the sun, totally eclipsed it. La Sage tells us, that:

"Corpuscles fly with a velocity millions of times faster than anything in the universe, and those which are stopped by the earth and the sun, are few compared to those which go straight through the sun and the earth without striking a single molecule."

From where do these corpuscles come, and to where do those go which pass through the sun and the earth? Again we say, not from nothing, nor into nothing; they still exíst somewhere in space, but outside the sun and the earth.

If it was within natural possibility for a sufficient number of oxygen and hydrogen molecules, in their passage through space, to strike and cover a world like ours, where is the impossibility or even improbability, that a sufficient number may not strike the sun; drench it in their torrents; extinguish its fires, and leave it, no longer the "Sire of the seasons and monarch of the climes," but hanging in space, dead, dark and cold?

All our storms of rain are nothing more than an aggregation of oxygen and hydrogen molecules in numbers proportionate to the duration of the storm, and when driven by the wind merely change their position. Those which do not fall on the earth are gone, somewhere outside the earth.

Whenever any physical phenomenon presents itself, and is so conditioned as to act on our senses, through which only can we perceive it, it must have had a prior existence somewhere, and is formed of something, call it atoms, matter, monads, molecules or whatever you may please, it is still something, and cannot be

other than itself, nor be evolved from something else. Every atom *is;* from its beginning *was,* and will always be, its own individual *self,* composed of that which makes it, and it alone, what it is, and has its own history through all eternity.

Epidemics Accounted for on the Jubal Theory.

Gentlemen, on our theory, we can account for the presence of epidemics. For instance: The Cholera-molecules, how they drop in on the earth at different periods; how, starting in Asia in 1830, they travelled in a belt around the world, through hot and cold climates, keeping so close together as often to leave unaffected the half of a city, and passed around whole districts. The same thing occurs with the small-pox. Inoculate a person with the molecules composing its virus, and from some, as yet, unknown cause, the small-pox molecules cannot interpose between the molecules composing the organism. Why is this? Simply because the conditions of the organism have been rendered such that these molecules cannot exist there, can make no lodgment, no more than could the ice molecules on the world when it was in a molten liquid condition.

During the prevalence of epidemics, what are all our sanitary provisions for? Nothing more nor less than our efforts to render the *conditions* such, that the molecules causing them cannot exist. When epidemics abate, it is simply because their molecules have performed their mission and gone away; and the epidemics will not return until a new set drops in the same region on the earth.

What are contageous diseases? When children have the diptheria, why are mothers cautioned not to kiss them, or permit others to do so? Because by so doing they might inhale the *germs* of the disease. What are these germs? They are beings, living organism, aggregations of molecules, containing within themselves the *oneness* of individuality, as much so as a mammoth. These germs are floating in the air, and when they aggregate in sufficient numbers, can be seen by the unaided eye. When diseases are prevalent, why does not everyone contract them? Because their several *conditions* are such, that these germs can make no lodgment.

How Living Things Increase and Decrease in Bulk.

Before we get to examining into the origin of the various forms, sizes, organs, colors, and habits of individuals of a species, and seeing whether they have been produced according to the theory of Mr. Darwin, we desire to explain and prove our theory a little farther, by endeavoring to show you, in what way living things *grow* less, as is said, as well as increase in bulk.

We must again recall to your minds the science of molecular physics, that it takes two or more atoms to form a molecule; that they are of different essences; that in nature it takes an exact number of each peculiar kind of molecules to aggregate and form each object according to its size, weight, etc., etc.

Now, gentlemen, let us suppose that it takes exactly one million of molecules to form, we will say, the healthy arm of a man. Of course, to do this, it would take more millions of molecules than there are miles between this earth and Uranus. Suppose the arm of this man should shrivel to half its weight and size—to a half a million of molecules, what would be the natural cause? Why, simply, that a half million of molecules of flesh, blood, muscle, etc., previously composing the arm, have left, disintegrated, shrunk back, as Bonnet says, whence they came. They have not died nor gone into nothing. They have done exactly what Prof. Huxley says they do.

"A mass of living matter is simply a molecular machine. If the process of disintegration and integration balance each other, the size of the living organism remains stationary. Integration of its *peculiar* molecules increase, and disintegration reduces the size of the living organism."

Once more. Suppose a boy to be 4 feet high, and to weigh 100 pounds, made up, of course, of the various kinds of molecules it takes to form a boy of this size and weight. Suppose he gets to be six feet high, and weighs 200 pounds. He has not evolved nor *grown* these additionol 100 pounds. He has simply integrated an additional 100 pounds of his "specific molecules." But suppose he had stopped *growing*, as is said, when he was 4 feet high and weighed 100 pounds? In this case, the proof is plain, that he had received all the molecules which pre-existed for him, and could integrate no more. If there be any truth in molecular physics, this must be so; be-

cause he could not integrate nor appropriate the molecules of some other boy, or he would be a part of that other boy.

Suppose him to be a Caucasian boy, he could not integrate the molecules of the negro, or the mongolian, yet, the molecules of these are human molecules, but of a different character. If he were half caucasion, and half negro, he would then, according to the natural law, integrate and receive the exact number and kind of molecules to keep him a mulatto as long as he lived. If organisms could integrate the molecules belonging to other organisms, Mr. Darwin would have been saved the labor of attempting to account for the origin of species, as then, there would be none to account for. It is thus, on our theory, that we can account for the permanence of species; for the different sizes of the same species, also for those of all objects whether animate or inanimate.

But to return to our boy. Suppose by the action or non-action of some of his molecules, he should get sick and lose 50 pounds of flesh, etc., etc., then, as we have shown, that many molecules have disintegrated. Then, supposing he, what we call died; immediately his other molecules commence to leave, disintegrate; shrinking back to their original position in the universe, and he would simply pass from visibility to invisibility. Nothing dies; he *was*, and he still *is*. As a phenomenon, he once became so conditioned as to act on our senses. He has ceased to do so. His non-appearance is no proof of his non-existence. Whether the molecules of this boy ever reaggregate and bring him again into visible existence we shall see further on.

Let us pursue this argument. Suppose this boy had lived and died in Egypt 5,000 years ago; had been well embalmed, mummified, or even later, and been put into the 19th century, air-tight casket, then, in these cases, his 50 pounds of molecules would have been prevented from reaching their original place and condition in the invisible; they could not disintegrate. Why not? Because some other kinds of molecules, those composing the embalming and the casket, prevented them from so doing. Supposing that at some future time, some future man, for some purpose, takes and uses some things formed of stronger and different kinds of molecules than those which compose the

embalming and the casket, say fire or a cold-chisel, and destroys the embalming and opens the casket? Why, then, the 50 pounds of flesh, bone, muscle, etc. molecules, immediately commence to disintegrate, and it makes no difference for how long a time they may have been kept in those conditions, they are preserved intact. The molten-liquid molecules inside our earth have been imprisoned by the granite rock molecules ever since these aggregated around them.

According to Geology, it is two hundred million years since the formation of the Cambrian strata. The molecules which got on the earth during that period, and formed the creatures whose fossils are now found preserved in these strata, have been kept there; but now, when the modern Geological vandal, with his stronger molecular pick and shovel, digs out these treasures of the earth, they are enabled to disintegrate and get back whence they came.

Dr. Croll estimates "that the Glacial period occurred about two hundred and forty thousand years ago, and continued for about one hundred and sixty thousand years."

We wish he had made his estimate sixty-*one* thousand years, because then there would have been some room for an argument, as to just how long the sun refused to furnish any more hot molecules.

Sir Charles Lyell tells us, that

"The elephants found imbedded in the ice at the mouths of Siberian rivers, have their heads all pointed south, and are so fresh and well preserved, that the wolves eat them."

So, then the molecules which formed these elephants two hundred and forty, or perhaps, forty-*one* thousand years ago, have been detained on the earth for that length of time. But how came all of these elephants to die with their heads pointing south? It is easily understood; because, during the time when the ice molecules commenced coming, these elephants were endeavoring to reach a part of the earth where the *conditions* were such, that their molecules could exist; but before they could do so, the ice molecules, like a deluge, came and overwhelmed them.

Thus our theory is again sustained by ascertained facts. The icebergs were no more evolved in the Darwinian sense, than

were the elephants they entombed. Now remember, that on the theory of Evolution, these icebergs did not exist in the gaseous vapor; so, like everything else, they must have been evolved; then, how are we to reconcile this with science?

If molecules never change their fundamental essences, and as one cannot give that which it has not to give; cannot impart that which is beyond its nature; and, as according to the theory of Kant and others, these primal molecules were once all hot molecules, then, how could they have produced cold? As evolution is not causation, how came these icebergs into existence? Besides, what are we to do with the possible and the impossible, with that which is *not*, can never *be?* The potential, at any rate, must exist. Leaving aside the question, what *caused* the potential? For, even in potentiality, it is not possible for a potential heat to become an actual cold, as then, it would either cease to *be*, or become other than itself, or something which was *not*, which is impossible.

That the Universe was Originally Filled with a Cold Vapor, is a More Probable Theory, than that of a Fiery Vapor.

Evolution, like all theories, is based on a supposition, and as it commences its operations with a primal something, let us, in a few words, examine the cosmological theories of Kant and Laplace, and see if a cold primal something is not a more probable theory than a hot primal something. Kant's theory is, that

The whole universe, space, once, inconceivable ages ago, consisted of a *gaseous* chaos; that all the substances which are found at present on the earth and other bodies of the universe in different conditions of density—in the solid, semi-fluid, liquid and elastic-fluid or gaseous states of aggregation—originally constituted together one homogeneous mass, equally filling up the *whole space* of the universe; that by rotation was formed our solar system; that the original gaseous condition of the rotating bodies *changed*, by refrigeration and condensation, into a *fiery*-fluid or molten state of aggregation. Heat was generated, and the rotary suns, moons, and planets, soon changed into glowing balls of fire, like gigantic drops of melted metal, which emitted *light* and *heat.*"

Laplace tells us, that:

"Our entire solar system once consisted solely of the sun.

An immense ring was formed, which, like a dish dropped on the floor, broke into fragments of different sizes, thus forming worlds."

We will not stop here to ask, what caused the primal motion in this gaseous chaos at this hypothetical time? But will accept the theory, that the universe was once filled up equally full of primordial matter or molecules, and by reversing the theory affirm: that these molecules were cold; that by rotation they formed an immense ring which broke into fragments, and formed bodies, or worlds, like gigantic drops of ice, which emitted cold.

Without again entering into the dispute between the advocates of the Emission and Undulatory theories, as to the cause of light and heat, it is admitted by all scientists, that heat is generated; then, there must have been a time when heat did not exist; therefore, the original condition of primordial matter, whether from a beginning or from a No-beginning, must have been cold: and if the undulatory theory be true, then, it must have been the frozen molecules composing the rotating suns, moon and planets, which, by the rapidity of their oscillations, generated heat, causing them to "soon change into glowing balls of fire which emitted light and heat."

Taking either hypothesis, we are compelled to limit this chaos, and the amount of matter contained in it, else, there could never have been a change in it from its original condition. For if this matter were infinite, it would also, be eternal, therefore, could not change and become finite in quantity and duration. If it were finite, it must be mutable, therefore subject to change, But even so, it could not change itself; it could not be the cause of its own causality.

As Evolution, in any sense, is not a *cause*; if the matter of this chaos commenced to rotate at some hypothetical time, and formed itself into suns, moons and planets, our world and everything in and on it, then, there must have existed an antecedent *cause*, or else the correctness of the conclusions we have deduced from the Self-existence theory in our first lecture, must be admitted, viz: "Whatever Is, always Was."

Now, let us see if the hypothesis of a cold chaos, a cold vapor, if you choose, does not rest upon a better foundation, and

have more claim to probability than that of a gaseous chaos, an igneous vapor.

In what condition is the whole space of the universe at present? It is, science tells us, filled with an imponderable elastic ether, an element of matter, substance, else, light could not be transmitted. This substance is in such a condition of cold, the intensity of which, the senses are unable to covey an idea to man. The extent of this space is such, that if all the bodies in the universe, the suns, moons and planets, were to rush together and form but one body, it would not occupy as much of this space, as would a boy's marble, in all the oceans of the whole world.

If this space was once filled up equally full of an igneous vapor, what has caused this cold which now fills this space? Have the worlds absorbed all the heat of this original igneous vapor? If heat is generated by motion, friction, the impact of bodies, oscillations, etc., and, if by radiation the sun is reducing in size from loss of heat; and, if many worlds have already lost their heat, and are hanging dead and dark in this space, then, when they shall all have reached this condition, where will be the heat which once existed in this chaos, this infinite universe, filled up equally full of a fiery vapor?

Destroy bodies and you annihilate heat, and the matter of the universe would again be in its original cold chaos. The very admission, that heat is generated, is not only admitting its beginning, but also, that matter originally existed in a condition of cold. Matter, in itself, is cold; and, as according to the undulatory theory, the heat of a body is caused by the rapid oscillations or vibratory motion of its molecules, and on the Self-existence or No-beginning theory, then, if the molecules in this primal chaos were not eternally in motion, rotating and oscillating, they must have been first in a cold condition. And we repeat. In either condition, if this matter is infinite in extent, and existed eternally, no power could ever have changed it.

If these reasonings be correct, upon what foundation rests the gaseous vapor theory? If, as is claimed, that our visible universe has been produced from this gaseous vapor, by a natural law of Universal Evolution, which is admitted not to be causation, it has never been shown that this law, but science has, so

far as it knows, that since the beginning of things, there has has never been a change in the essence of a single molecule, yet Evolution philosophers claim, that this law of Evolution has gradually *changed*—now mark—the external condition of this primordial something, matter, into a gaseous vapor, then into bodies of molten liquid; then changed some of these into cold bodies, and covered one of them, our earth, at one time, miles thick in ice; then, at another time covered it with water; then dissipated a portion of this water; then, changed some of the matter of this earth into an animated speck of jelly, and produced conscious life. Then, this law of Evolution, continued changing this speck of living matter into creatures, who, are at first cold-blooded; then, changes these into creatures who are hot-blooded, and, by continuing the process, has produced the mammoth and the man from this speck of jelly, or from some very simple form, which was originally diffused throughout the universe as a gaseous vapor.

If Evolution has done all this from a fiery vapor, then, we ask, why could it not have done so equally as well, from a cold vapor? Push the reasoning home. If Evolution has produced that which was *not* but now *is* from a hot or a cold vapor, no reason can be assigned why it could not have accomplished these results from no vapor.

Further, as Evolution is not causation; and if everything existed potentially in the molecules of primordial matter, then, Evolution in its true sense, becomes nothing more nor less than a force or law of nature impressed upon her by that antecedent power which *caused* the potentiality of all finite existences, which may or may not, in the natural order, come into actuality.

Therefore, taking Evolution in the Spencerian and Darwinian sense, we reject it, and claim, that our theory is more natural, reasonable, and philosophical. One which affirms, that, whether from a beginning or a No-beginning of things, the universe is filled with molecules of different kinds and nature, which are assorted into sets; that there are just so many, and no more, sets, with which to form every individual object, organic or inorganic, that ever has or ever will come into, as is said, actual existence; and, that these objects, which must exist in potentiality, when their time and season come, will become

actual, perform their peculiar mission, and, when all these sets of molecules are used up, that then will come the Judgment Day, or Universal Dissolution.

There is stilll other important questions to be examined into, and if not answered in the negative, would destroy our theory; one is:

Do Natural Bodies, After Disappearing, Assume New Forms and Reappear as Other Bodies?

This question we answer in the negative. The 7th article of our theory affirms, that when natural bodies disappear by burning, decaying, etc., their molecules never assume another form. That every natural body when its comes into actuality, is formed of a new and specific set of molecules.

This is contrary to the teachings of natural science. So let us see if these teachings can be sustained. We have already given you what Prof. Haeckel, in his "History of Creation," says:

"Natural science teaches that not one particle of matter has ever come into existence nor one passed away. When a natural body seems to disappear by burning, evaporation, decaying, or chemical combination; or the coming into existence of a natural body, a crystal, a fungus, an infusorium, depends upon the different particles of molecular aggregations which existed before in a certain form or combination, assuming a new form or combination, in consequence of changed conditions of existence. But never has a particle of matter vanished, or even an atom been added to the already existing mass."

The truth of this doctrine, which science teaches, has been taken for granted; has been assumed, but never proved. It not only contradicts the natural law, the basis of molecular physics, but is repugnant to reason and sound philosophy. Let us philosophize a little on this.

One canon of molecular physics is, that molecules can aggregate and form that only which their nature or essence and affinities enable them to form; for, as Prof. Maxwell truly says:

"None of the processes of nature, since the time when nature first began, have produced the slightest change, the slightest difference in the properties of any molecule."

If it could be shown that such was not the case, molecular physics would be destroyed, and Evolution, in the Spencerian and Darwinian sense, have some foundation on which to stand.

If every natural body, from an atom to a world, is its own individual Oneness, and has its own history through all eternity; if no thing can be other than itself; if no power can change atoms of hydrogen into atoms of oxygen, carbon, nitrogen, etc, or combine the molecules forming plants, birds or fish into the forms and essences of those which form mammals, or the crystals of salt to form those of sugar, etc. And if, as Mr. Spencer says:

"Organisms are built up of highly complex molecules peculiar to themselves, which are compelled to fall into the organism to which they belong by the environing forces acting on them."

And if, as he further says:

"An entire history of anything must include its appearance out of the imperceptible and its disappearance into the imperceptible, be it a single object or a whole universe. Hence wherever we now find being so conditioned as to act on our senses, it must have had an antecedent existence under *this* sensible form, and will have a subsequent existence under *this* sensible form when it returns to imperceptibility.

We say, if this be sound philosophy; if every object is its own individual Oneness; if all natural bodies are formed of molecules peculiar to themselves; can form only such individualities as their nature compel them to form, by falling into the structures to which they belong; then, we ask: how is it possible for the molecules which once aggregated and formed a certain individual body, to re-aggregate, have a new existence, assume and come into visibility as a new body under a new form? How does science *know* that the molecular aggregations of a natural body changes, assumes a new form of existenee, after it passes from the perception of our senses; that when a new natural body appears, it is composed of the same identical molecules which existed before under some other form; or that the old set of molecules *ever* again re-appear? Should this be the case, how can the senses make it known to us?

It might be replied: "That by evaporating water into steam, and then condensing it, the same identical molecules of oxygen and hydrogen will form the same water." This is true; but these molecules have not disintegrated; have not, like the dead horse, decayed and passed into imperceptibility. Besides,

water, as such, is one, has but one form, yet assumes the form of whatever vessel in which it may be placed. One molecule of oxygen and one of hydrogen will form one drop of water; this form never changes. If a sufficient number of these drops aggregate and form a tear in the eye of pity, the dew on the rose-bud, the crystal of eternal snow on the Alps, or the surging waves of the mighty ocean, it is still water, and can become nothing else but water.

The physical agents which act on bodies are disclosed to us only by their seeming effects, their intimate nature is completely unknown to us. We cannot say whether they are properties inherent in matter, or whether they result from movements impressed on the mass of subtile and imponderable form of matter diffused through the universe.

Now, as the state of a body depends upon the relations which exist between its molecular attractions and repulsions, it is by the work of these physical agents only, that solid bodies exist, or seeming changes take place among them.

Any work on physics will tell you, gentlemen, that a body is only *said* to dissolve when it becomes liquid, in consequence of an affinity between its molecules and those of the liquid. Take sea water—this freezes at—2'5° to—3° C; the ice which forms is quite pure, and that which remains are the original crystals of salt. Put together equal parts of alcohol and water, freeze this; the ice molecules are pure, but all the alcohol molecules remain as the residue, their molecules have not changed one iota; and because the molecules of the crystal of salt and alcohol were, by the water, rendered invisible to us, this is no proof that they ever changed their original form.

Until we can annihilate an atom, we cannot change the form and essence of a single molecule, whatever seeming transformations or destruction it may undergo, it remains itself, existing under its own identical form and essence. The molecules which form a crystal of sugar, can no more change and form a crystal of salt, than these can, after being eaten by man, change into the forms of blood, bone and muscle.

What we shall contend for, is this, that the various kinds of molecules which aggregate and form natural bodies, can form such only as their nature compels them to form, and no other;

that these forms come into actual visible existence but *once*; fullfill their peculiar mission, and when they, what we call die, decay, cease to act on our senses, their molecules never again re-aggregate, nor assume and re-appear under a new form, but are existing under the same condition of existence as they did before they aggregated and formed an actual, visible body; how or where, we know not, but reason and sound philosophy will tell us, that they existed, somewhere in the imperceptible, before they became so conditioned as to act on our senses, and will still exist in their individual oneness when they cease to act on our senses.

If the doctrine of universal existence and non-annihilation be true, this must be so, and as a philosopher, we are compelled to ask, like the flame of the lamp, in what obscure corner of the universe did the molecules of Cheops, Solomon and Cæsar lay, before, by their aggregation, the light of life brought them into visible reality? They must have existed somewhere? They could not come from nothing? But, from wherever they came, they could form no individualities other than those of Cheops, Solomon and Cæsar. They were their own, from a beginning or from a no-beginning, and will remain their own through all eternity.

When these men died, decayed, and were rendered invisible, again, like the flame of the lamp when extinguished, to where did their molecules go? Not into nothing? Their non-appearance is no proof of their non-existence in the same form, nor that they have assumed any other form of animated nature. Let us put our argument in the form of

A Discussion Between Natural Science, Senses and Reason.

Natural Science.—I assert, that all natural bodies which seemingly disappear by burning, decaying, evaporation, etc., merely take new forms of existence. That when a natural body comes into existence, it is nothing more than the molecules, which existed before under one form, assuming a new form, in consequence of their changed condition of existence.

Senses.—Do I understand you to mean by "*a new form of existence*," that a new being of a different nature comes into ex-

istence? For instance: the sheep which rots on the hill-side, the grass and turnips it has eaten, and which rots and disappears with it, that their molecules re-aggregate, assume new forms of existence—say, that of a dog, an apple or a potato, in consequence of their changed condition of existence? Also, that molecules which have once aggregated and formed a natural body, that they ever again, under any form, come into visible existence? If they do, they have never appeared to me, and until, under these new forms, they impress themselves on me, you, Mr. Natural Science, can know nothing about the matter.

NATURAL SCIENCE.—I have not, as yet, become so exact in my knowledge of causes and effects, of the laws of nature acting on the animal, vegetable and mineral, as to say, that the molecules of bodies which decay and disappear, again, as whole sets, form new bodies; but I do say, that, when they disappear, they are not annihilated, but enter into, and go to help build up new and different forms of bodies, and come again into visible existence under these new forms.

REASON.—I am told, Mr. Science, that you also assert, that "every natural body is formed of molecules, that these are all different from each other; are assorted into sets, some having an affinity, and some a repulsion for each other; and, so far as Mr. Chemist has gone in his efforts, he has been unable to change the form or the fundamental essence of a single one of them. Also, that they are compelled to fall into, and build up, not only the structure, but each particular part of the structure to which they belong."

Therefore, granting that molecules again come into visible existence, on your own principles, how can the molecules which once formed living sheep, grass or turnips, re-aggregate and form any body other than sheep, grass and turnips?

So far as I am concerned, I cannot escape the conclusion, that there exists a oneness of individuality in nature, from a molecule to a world, that no thing can be other than itself, as a thing is that, which makes it what it is, and distinguishes it from all else. Should Sir William Thomson be right in his opinion, that "life and the various forms in which it exists on our earth, were brought on meteors which fell from some other planet;"

then, when these forms disappeared from the perception of the forms of life they left existing on the planet from which they fell, did they, during their invisible journey, or when they arrived on our planet, assume a new form, before presenting themselves to our friend Mr. Senses?"

I judge that they did not, no more than could our crystals, if they are, as Prof, Huxley thinks it probable, "descendants of atoms which inhabited some special part of the primitive nebulous cosmos." Whatever powers I possess of judging of possibilities and impossibilities, it is as repugnant to me, that a thing can change and become other than itself, as it is, that a thing can exist and not exist at the same time. But you are right in saying, that "nothing is annihilated."

Whatever becomes of a thing after it passes from the perception of Mr. Senses, I know not, but should the same identical molecules reappear, and he informs Mr. Understanding, who, should he give me his ideas for approval or disapproval, I shall be compelled to decide, that these molecules can assume only the same identical form under which they first appeared.

Of myself, of course, I have no knowledge of the absolute existence of anything, but, when a proposition is correctly presented to me, I can deduce the correct conclusion, as, in my judgments, I am always right, as I am derived from a source which never errs.

NATURAL SCIENCE.—But, when a natural body disappears by decaying, etc., I deny that its molecules ever again come into visible existence under the same form. Scatter the molecules of the decayed forms of flesh, fish, or plant, over a piece of ground, they will enrich it, and enable the earth to produce a larger and greater number of bodies, which will come into existence under these new and different forms. If the molecules of decayed forms, do not enter into, and help build up these new forms, say, plants, fruit or vegetables, from where could come the larger and increased number of these new forms?

I have never asserted, that the molecules of decayed forms of flesh and fish, again produce other forms of flesh and fish, but, that under their changed condition of existence, by their new molecular aggregations they assume new and different forms.

REASON.—So far as I can judge, it seems to me, Mr. Natural Science, that you are assuming a very old form, one which Mr. Philosopher always assumes when in a difficulty, the form of taking for granted. Of course, I do not, but how do you *know*, that molecules which disappear, ever again reaggregate or assume new forms, or any part of new forms?

I will repeat, if, as you say, molecules are all different from each other, never change their fundamental essence, and can aggregate only with those for which they have affinity, as we asked before, how can the molecules of flesh and fish possibly re-aggregate and form, say, that of a turnip? Take a turnip to Mr. Chemist, and see if he can find the molecules of flesh or fish? It may be that he has done so, but I have no means of judging whether he has or not.

Further; should the principles you teach be true, I see no way of avoiding the conclusion, that the molecules of forms which have decayed, can, and may produce new *species* of forms, both in the animal and vegetable kingdoms.

NATURAL SCIENCE.—With the origin of species, I really have nothing to do. In whatever way the different species of bodies may have originated on the earth, so far as I and Mr. Naturalist have gone in our efforts to discover the primal natural cause of the difference in species, we have decided, that the difference in the forms of each, are produced from their own peculiar germs, which, when quickened into life, are developed by being built up of their own specific molecules, which fall into and build up the structures to which they belong; but what I assert and teach is this: That after these developed forms decay, their molecules do not enter into and build the same, or similiar individual, but new and different forms, under their changed conditions of existence.

SENSES.—But this, Mr. Science, is only getting back to your first assumption, that new forms *are* assumed by the molecules of old forms. Now, if your knowledge of the laws of nature affecting the animal, vegetable and mineral, enables you to assert, that molecules *are* compelled to fall into the structures to which they belong; that decayed forms do assume new and different forms; and you and Mr. Naturalist have to run back to a primal germ for a starter of all forms, then, let me ask, how,

under any condition of existence, can the molecules of a decayed fish fall into the germ, and help build up and develop that of an oak tree?

Take your crystals of different shapes, burn, liquify, destroy and seemingly annihilate them, will the molecules of these, under any conditions of existence, ever re-form under any form other than their own peculiar shaped crystals? Remember what Mr. Chemist says on this: that under all conditions, all combinations and apparent destruction by him, crystals retain their identity; that, if together, several different kinds of minerals be liquified, either by acids or fire, each kind, will, under favorable conditions, resolve itself into its original element, and form again its exact and peculiar shaped crystal.

As before remarked by Mr. Reason, that in attempting to account for the astounding fact in nature, of mineral identity, Prof. Huxley thinks it may be done:

"By attributing to minerals that of descent; that these forms are the descendants of atoms which inhabited some special part of the primitive nebulous cosmos."

I know nothing about the probability of this, nor of your, as yet, unsolved questions of new forms, but the philosopher, Mr. Spencer, who has before been quoted, says, that:

"Organisms are built up of highly complex molecules, peculiar to themselves. These molecules are compelled to fall into, and build up the structure to which they belong, by the environing forces acting on them, and they arrange themselves in each part of such structure."

Even should this be true, the five powers which I possess have never informed me of the fact, much less, the fact, that the molecules, which once formed a living body, and which has decayed, ever re-aggregate and assume new and different forms.

But in regard to the non-annihilation question. Take the dead sheep; it rots and disappears, you and Mr. Reason say, that "it is not annihilated." I do not know this. So far as I have any means of ascertaining what becomes of it, it is, to me, non-existent under any form. But, if, under a new molecular aggregation, it does, as you say, "merely assume a new form of existence owing to its changed condition of existence," then, when this new body is formed out of the identical molecules which once formed the body of this sheep, or any other form,

presents itself to me, let me see, feel, taste, hear or even smell it, then I shall know of its absolute existence, and not before.

Mr. Reason may sit up there and pass his judgment on non-annihilation; and you, Mr. Natural Science, assume that new forms *are* produced by the molecules of decayed forms, but there is one thing sure, that, except through me, neither Mr. Intellect, Mr. Understanding, nor you, Mr. Reason—and you are all allied in some way—can know nothing about the matter, or of the actual existence of any form whatsoever.

Without my aid, Mr. Intellect would be lying dormant and inactive, while Mr. Understanding would not have an idea to present to you, Mr. Reason, for your approval or disapproval; and as to Mr. Natural Science, if he does exist under any actual form, he exists only by feeding on such forms as I present to him.

Were I to leave the bodies in which I dwell, they would have no knowledge of their own existence. In all the great realm of nature, with all her manifold powers, there exists not one, which can inform a body that it constitutes a part of nature.

Without me, the intellect would die, and although forms of bodies may still exist, there would exist in nature no intelligence to know it. The universe would be a blank, existing in inconceivable solitude; and if you, Mr. Reason, can draw the line between the condition of a body existing in utter isolation, with nothing in it to inform it of its existence, and annihilation—the "Nirwana" of the Buddhist, the supreme end, Nonentity—and the condition of a body without my presence, it is more than Mr. Natural Science has been able to do in his efforts to prove that the molecules of decayed bodies assume new forms, owing to a changed condition of existence.

No, no, gentlemen, until you know all the laws of matter and of mind, you are not in a condition to *know* that the molecules which once formed visible existences, assume new forms of existence, or that they ever re-aggregate and reappear under any form.

If your doctrine, Mr. Science, is ever proved, it can be done only by me. All knowledge must first come directly, or indirectly through me. Ask Mr. Understanding whether he does not receive all his ideas through me.

REASON.—What Mr. Senses has said is true, for I find that when any new phenomena acts upon him, Mr. Intellect arouses from his lethergy; becomes active, and taxes me with considerable labor to deduce the correct conclusions from the ideas presented to him by Mr. Understanding.

There are other questions to be considered and decided, before your doctrine of change of form, etc., etc., can be proved; the questions of potentiality—the possible and the impossible, viz: the impossibility for that which does not exist potentially to become actual, also, notwithstanding a thing may never become actual, its possibility to become so, would still persist through all eternity.

While you, Mr. Science, and particularly you, Mr. Senses, may never know, whether or not, that, under some mode, incomprehensible to man, the type or the same forms which become actual, exist in potentiality; but I, with my powers, am able to know, that that which becomes actual, never can become other than it was when existing potentially.

For example: Take the German philosopher, Prof. Steffens, who is an idealist; denies the existence of matter, therefore his own existence, and makes everything consist in the mind with its different states or ideas, still, notwithstanding his denial of the existence of matter, he admits the existence of mind; and whether his mind came from the film on the underside of Prof. Clifford's jelly-fish, matters not; but even admitting, that he is *all mind*, before he became so conditioned as to walk around and express himself, he must have existed as his own individual Oneness in potentiality.

We therefore ask, was it within possibility for him to come into actuality as a giraffe or as a fish? No. And why not? Because he would then be something else. When he returns to imperceptibility, can I admit, that he can then assume a new form, and thus become something else? Can a potential, or an actual decayed sheep, become an actusl horse, a jet of gas, or a cabbage?

But should your doctrine, Mr. Science, be true, then, when Prof. Steffens disappears, is lost in the imperceptible, and should reappear after having assumed the form of a horse, even retaining his mind and ideas, then, the form of body in which Mr.

Senses exists, and the powers which this body possesses, he could ride him. Should the Professor assume the form of an inflammable gas, he could burn him; or that of a cabbage, he could make him into saur-kraut and eat him. Also, should the cost attached to the manufacturing of the saur-kraut be 5 bits, and Mr. Senses had but 4 bits, he could call on Mr. John Stuart Mill to show him how he could make his 4 bits equal 5 bits. With all my inability to err, this is a feat which I am unable to accomplish.

Prof. Jubal gives his Opinion of this Discussion.

So far as we can judge, young gentlemen, of the merits of this discussion, we think, that, notwithstanding Mr. Natural Science claims a knowledge of causes and effects; of the laws of nature affecting the animal, vegetable and mineral kingdoms, he has failed to show that his whole foundation is not an assumed one, as he has presented no proof whatsoever, that the identical molecules of forms which decay, ever assumed a new form of existence.

Some of the assertions made by Mr. Senses cannot be controverted, as, in many of them, he knew what he was talking about, particularly when he said, "that it is through him only, we can gain knowledge of any form whatsoever of beings outside ourselves." It is possible that forms may exist of which he has no knowledge, but should they exist, they will remain unknown, until he is endowed with additional powers, or those which he now has are so aided, as to enable him, as he said, "To either see, feel, hear, taste, or even smell them." Still, with all the wonderful powers which he now possesses, he is often mistaken in what he does see, feel, hear, taste, and smell.

Notwithstanding, in his argument, Mr. Reason dealt in metaphysics, we see no way of avoiding his judgments, yet, they are still open for discussion. For while there exists a great difference of opinion among natural scientists, we never knew two metaphysicians to agree, notwithstanding they appeal to their reason as the final arbiter. But this may be, that as all our ideas are received by Mr. Understanding through Mr. Senses, and are submitted to Mr. Reason for approval or disapproval, who

being fixed, and in all his decisions appeals to himslf as the ground and substance of their truth, he is, therefore, as an ultimate principle of our nature, never erroneous.

So, when these metaphysicians, although using their reason, arrive at different conclusions, it is because they have obtained them by some artificial process taking the place of reason. These conclusions may be just in themselves, but wrong only as regards the assumptions or suggestions out of which they arose.

Therefore, as Mr. Reason based his judgments on the assumptions of Mr. Natural Science, we think they are correct; still, at the same time, when he showed what Mr. Senses could do, that is, after the form of Prof. Steffens had decayed, and in case his molecules, either of matter or of mind, assumed either the form of a horse, a gas, or a cabbage, we think, that such illustrations of a principle, rather lets down the dignity of the subject.

There is still another question to be answered, which grows out of our past argument, namely :

DO THE MOLECULES OF A BODY WHICH DECAYS, EVER RE-AGGREGATE AND FORM THE SAME INDIVIDUAL BODY, OR IS NOT EACH NEW BODY FORMED OF A NEW AND SPECIFIC SET OF MOLECULES ?

Gentlemen, the first clause in our theory affirms, that there are existing so many sets of molecules only, with which to form every individual body that ever did, or ever will come into actual or visible existence ; that these come into actuality but once, perform their peculiar mission, and when these sets are all used up, that then, will come the Judgment Day, or Universal Dissolution. So let us see if this is not more natural and philosophical than the teachings of natural science, and if not, what are some of the consequences which must flow from its teachings.

As the human mind can form no idea of anything, without, at the same time, forming an idea of an opposite; and, as there can be but one infinite, therefore, an infinity of objects is an absurdity ; and, as there exists a multitude of different objects

formed, as science tells us, of different kinds of molecules, then, there has existed so many molecules only, from the first, whether from Creation, or from a No-beginning, with which to form all mineral, chemical, vegetable, and animal objects. Upon no correct principle of reason, logic, or philosophy, can this be denied.

As we shall confine our argument to the animal, Man, from this reasoning, there exists a certain number of human molecules only, with which to form the human race. These molecules, like all others, are, before their aggregation, imperceptible to the senses.

According to all non-creation theories, also, that of Spencer's and Darwin's Universal law of Evolution, plants grew on the earth, and animals fed on them; trees reared their lofty heads, and birds built their nests in their sheltering arms, ages upon ages before man appeared to crush the plant beneath his treading heel, or, with murderous hand, to slay the bleating lamb. It was during some one of these ages, that man first came into existence; which one, we shall never know; but we do know, that it must have been many ages before the pyramids were built, or Saul sat on the throne of Israel. Before this, men were born, and will continue to be born, when the sediment of the Nile shall have entombed the pyramids, and the name of Israel be blotted out from the memory of mankind.

As the molecules which formed each individual body of these past people have disappeared, let us again ask, has natural science given us one scintilla of proof, that they have ever re-aggregated and assumed the forms of other individual bodies, whether of man, beast or plant?

Let us suppose, that 100 years ago, there were existing on the earth, 1,500 million of human bodies, each one existing in his own individuality; these have died, decayed and disappeared, and, so far as natural science *knows*, have been annihilated. To-day there are 1,500 million of other individual human bodies existing on the earth. Therefore, these questions arise for natural science and philosophy to answer.

To where have gone the molecules which formed the 1,500 million of human bodies 100 years ago? If they have assumed new forms, what forms? The present 1,500 million

now existing on the earth, whence did these come? And what were their forms before they assumed that of man? Are they the molecules of past decayed plants or beasts? Are they the re-aggregations of the molecules of those human bodies which disappeared 100 years ago? Or, are they formed of new and specific sets of individual molecules?

To these questions, natural science and philosophy are compelled to give an answer. The present existing 1,500 million of human bodies, are the molecular aggregations of those bodies which existed before under other forms, animals, fish, plants, etc., or they are not. They are the re-aggregations of the same molecules which formed other past human bodies, or they are not. They are new specific sets of human molecules, or they are not. There is no medium between yes and no.

If human bodies are not formed of a new and specific set of molecules—if they are merely the molecular re-aggregations of molecules which once existed before under other forms, and have assumed the human form, owing to their changed condition of existence, or, if they are but the re-aggregations of human molecules which once formed human individual bodies, then, we would ask Prof. Credo, how can he reconcile this philosophy, or the teachings of natural science, with his doctrine, that, "on the Last Day, man shall rise in the flesh," and be judged for what he, his own individuality, did while existing in the visible present? Also, how can man rise in the same flesh, if his individual molecules have been forming the flesh of beast, bird, fish, plant or those of other men? And if so, how can man's oneness of individuality be singled out to be judged for what he did while existing in his own individual flesh?

But leaving these questions aside, as not belonging to philosophy, let us enquire into some of the consequences which must necessarily arise, if what natural science teaches be true.

If the human molecules forming men which have disappeared 100 years ago, assume new forms and reappear as animals, fish or vegetables, then mankind has been, and are, eating each other. It makes no difference how few or how many molecules may have entered into and helped build up a sheep, a fish

or a vegetable, they are still human molecules which once formed bodies of human flesh, for no molecule can change its fundamental essence; it is itself, and itself only. You might as well attempt to change the essence of a single molecule, as to create a planet.

If there be any truth in these reasonings, then we ask, upon what foundation rests the teachings of natural science, that "the coming into existence of a natural body depends upon the different particles of molecular aggregations which existed before under a certain form or combination, assuming a new form, in consequence of their changed condition of existence?" And if they do so re-aggregate, assume these new forms of existence, there is no escaping the conclusion, that generations upon generations of animals and men have been eating each other, and are cannibals.

If the doctrine of our theory, that human bodies are formed of a new and specific set of molecules, be denied; and it be affirmed, that the old set reappear and form new human bodies; and, as there could have been only a certain number of these sets existing from a beginning or from a No-beginning, then, these sets must have been duplicating and reduplicating from the first sets of molecules which aggregated and formed the first individual human bodies, and the conclusion cannot be avoided, that we once lived before, and will live again.

If our individual molecules could form a part of a body of some other species, or the body of some one else of the same species, the oneness of individuality would be denied. It is repugnant to reason and sound philosophy that a thing can become other than it was, is, and will for ever be.

Further, if the doctrine of our theory, that we are formed of our own peculiar set of molecules, which can aggregate and form a body but *once* only, be denied, and it be affirmed that we are merely the re-aggregations of molecules which once before formed human bodies; and, as philosophers tell us, that "all our thoughts, feelings, and expressions are the result of their action," if this philosophy and teachings of science be true, then, Fatalism holds mankind in an iron circle, and we are compelled to think, feel, express, and do just what we did when

we lived at some past time. And it will make no difference how many times our molecules may have, or will re-aggregate, we have done, are now doing, and will do, just what we did, every time we exist as an actual body.

This, is a sad picture to contemplate; for, as we have, as yet, a future before us, and, if in the past, we have been a lawyer, a stock broker; been in the penetentiary, or been hung, nothing can prevent the action of our molecules from thinking, feeling, expressing, and acting in such a way as will send us to "San Quentin;" neither can they disintegrate until after we are hung.

Gentlemen, this philosophy comes too near home to our individuality, to make us easy in our mind in regard to that future, which never *is*, but is always *going* to be. But we are consoled by our own philosophy; a philosophy which lays the responsibility of all our acts, thoughts, feelings, and expressions, just where they truly belong; upon the actions of our own specific individual set of molecules. A philosophy which gives us free-will to use them for our good or evil, and prevents our shirking the consequences, or dividing them with some one else who may have lived in the past. A philosophy which teaches a oneness of individuality, and, that when the time shall come for judgment, Justice will, like Nathan, with pointing finger, single us out; and with unerring truth exclaim, "Thou art the man!"

A philosophy which affirms, that from a beginning or from a No-beginning of things, there has existed just so many and no more different sets of molecules with which to form each and every individual body, organic and inorganic, that ever has, or ever will come, and but *once*, into, as what is termed, actual existence, performed their peculiar mission, and are all used up; that then, will come the time, when the molecules forming this earth, will be "rolled up like a scroll."

And, like the philosophy of Mr. Spencer, when Evolution shall have run its course, reached its equilibrium, that then, Involution or Universal Dissolution will, like a mighty giant, crush, beneath his treading feet, the matter of the universe, into the insentiate atoms out of which it arose, to begin again the Play—"Universal Life," or end the present, with the Farce—an "Omnipresent Death."

PROF. JUBAL CLOSES HIS LECTURE BY SUPPOSING THAT THE MOLECULES OF A PAST PEOPLE DO RE-AGGREGATE AND BRING THEM AGAIN INTO VISIBLE EXISTENCE.

Gentlemen, notwithstanding we are sustained in our theory of but one aggregation, by Professors Draper, Huxley, Haeckel, and Mr. Darwin, who all say, that

"The species of every animal, plant or vegetable, have arisen but *once* in the course of time, and in *one place* only on the earth, that when a species dies out it is clean gone for ever."

Which enables us, on our theory, to answer the question, why is this? Because their molecules have aggregated *once*, fulfilled their mission, and are all used up.

Still, we will suppose, that in some way, by some wonderful and, as yet, unknown law of nature, these molecules should re-aggregate, and again bring individualities into visibility, then they must be exactly the same identical individuals which once existed before, as their molecules can form that only, which their nature compels them to form. For instance. Take the boy of whom we have already spoken; his molecules could not re-aggregate and make him any other kind of a boy. If he was first formed of Caucasian molecules, these, certainly, cannot re-aggregate and form a negro or a mongolian boy, or any other organism. If they could, he would become someone else, which is impossible, besides, it would destroy the basis of molecular physics.

Still, gentlemen, should this philosophy be true, it will account for that which Mr. Darwin's sense of Evolution cannot, namely: How it is, that we find men, with great brains, are being born at different periods, along the stream of time. But it will account for, and enable us to conceive, how Napoleon may have been Cæsar or Alexander the Great; how Washington may have been Cincinnatus, and Bob Bangyoursoul, old Skepticus. Also, how some women may have been Jezable or Xantippe, and the only reason why their molecules, on their second aggregation, did not, or could not, do exactly the same things they did during their first aggregation, would be, because their outer relations were different and prevented them.

So, there may be more in the re-aggregation idea than we might at first suppose. Persons often have impressions of a scene and of events which they imagine they have seen before, and Mr. Sully suggests, that "these impressions may be an inherited recollection of something that occurred to an ancestor." Plato conceived, that these impressions give support to the theory of a state of pre-existence, in which identical experiences may have occurred.

So, upon a theory of a second aggregation, and of ever-existing impressions and reollections of scenes and events which occurred during the first aggregation of individual sets of molecules, would be a more reasonable philosophy than that of the theory of Atavism or Reversion, which is, that, although upon the doctrine of Heredity, "like produces like—the offspring is like the parent," still, sometimes, the offspring differs, in many respects, from the parent. Such as for instance, children having red or black hair, blue or black eyes, extra fingers or toes, club feet; or like Edward Lambert, whose whole body, except his face, palms of bis hands, and soles of his feet, was covered with a sort of shell or horny excrescences.

When any of these organs or characteristics appear in the offspring which are not possessed by the parents, this law of Reversion steps in and says: "The offspring has leaped back to some ancient progenitor, some remote ancestor who possessed the organs or characteristics in question, in a perfect state," and are accounted for by Mr. Darwin, in this way, that:—

"Every living thing has Rudimentary organs and characters derived from their ancient progenitors; that these organs and characters often leap into existence, although they may have lain dormant for thousands of generations."

Now, as every phenomenon in nature which presents itself and is within the scope of a theory, has to be accounted for; and as neither Evolution nor Natural Selection can account for these forms and qualities being produced so unlike the parents in one, or thousands of generations, Mr. Darwin, like Mr. Spencer, was compelled to pass some non-existent and impossible laws, and call them, Rudimentary and Reversion. And Mr. Darwin tells us, that he did this, for in speaking of the struggle for existence, and of the dying out of species, he says:

"Nevertheless, so profound is our ignorance, and so high our presumption, that we marvel when we hear of the extinction of an organic being; and, as we do not see the cause, we invoke cataclysms to desolate the world, or *invent new laws* on the duration of the forms of life."

Still, after all, gentlemen, if the doctrine of Reversion is true, it would be nothing more nor less than the re-aggregation of the molecules of some being, who had visibily existed at some past period; this our theory denies, and natural science has, as yet, failed to prove that the molecules of decayed bodies, ever again aggregate under any form.

End of Lecture Six.

LECTURE VII.

Rudimentary and Reversion Hypotheses.

Young gentlemen. our future lectures will be devoted to examining the many proofs brought from natural history, and the statements made by Messrs. Spencer, Darwin, Haeckel, Wallace and others, in order to sustain their theory of Evolution, and the many hypotheses which have grown out of it. In this examination, we shall, for our part, accept these proofs and statements as conclusive, or, at least, as being not only possible, but probably true.

Still, as some of you young gentlemen, who have read these natural philosophers, may not have put full reliance in their statements as being proofs, we will endeavor to show you, in our own way, that they are not to be gainsaid, and no reasonable man would attempt to gainsay them, at least, not any who has, as Mr. Darwin says, "attended to the recent progress of natural history."

Before doing this, however, we desire that you should hear what Prof. Credo has to say on a quotation from Prof. Haeckel, to which we called his attention a few days ago. We will, therefore, first read the quotation. Prof. Haeckel says:

"During the evolution of man and mammals, cartilages, muscles, etc., etc., disappear, which were very useful, and of great importance to our primitive ancestors. Almost every organism possesses one or more structures which are useless to its organization, valueless for life-purposes, and worthless for its functions,

"Thus, all have outer and inner muscles in the ears. The outer muscles are of great use to mammals, enabling them to erect their ears. In man they have become useless. As our ancestors, long ages ago, discontinued using these muscles, we have lost the power of using them. There is a so-called vermiform appendage of the *caecum* or blind-sac. If in the process of digestion a cherry-stone, or some hard body, he pressed into it, a violent inflammation ensues, which usually causes death. This organ is not of the slightest use to us, it is a dangerous

remnant of an organ which was much larger in our vegetarian ancestors, and of great use to them."

The Professor then goes on to say:

"These and other facts, afford us the most obvious proof of the theory of Descent, and forcibly refutes the Philosophy of the Schools, and the teleological or design doctrine embodied in that Ancient Fable of Creation."

Now, Prof. Credo, we shall be pleased to hear what you have to say, as to the probability or improbability of these facts in natural history, presented by Prof. Haeckel.

In His Criticism, Prof. Credo Becomes Satirically Absurd.

Prof. Credo.—Of course, Jubal, we are compelled to accept this "obvious proof;" for the reason given, namely: "It so forcibly refutes the doctrine of design embodied in that Ancient Fable of Creation." But, Prof. Haeckel should remember how important Time is to nature, and also to man, in accomplishing results. That "ancient fable" has not, as yet, had sufficient time to evolve into an "obvious fact." "In nature," Mr. Darwin says, "it might take millions of generations before much variation would take place, that nature takes a long time to do her work in bringing about, what are to us, accomplished facts."

Prof. Dr. Draper says:

"To nature lapse of time is nothing. To man it is everything. When nature is transmuting a worthless metal into a better, what signify a million years."

So you see, Jubal, that that "ancient fable" has not had sufficient time to transmute and become an "accomplished fact." There is no telling what length of time it has taken nature, nor what she meant by it, in making that *caecum* or blind-sac and the cherry-stone to get into it.

Time is of the utmost importance to Evolution. It cannot evolve, or as Mr. Darwin puts it, "Convert any ordinary quadruped into a giraffe," much less can it evolve an evolutionistic philosopher, unless it has sufficient time. If Prof. Haeckel can wag his wise tongue now, there is no telling the length of time it required evolution to evolve him from one of his "fish, or his vegetarian ancestor" into a philosopher, so as to enable him to wag it so lively when telling us, that "he was once a sponge."

Now, when that fable gets to be as ancient as his ancestral sponge, a future descendant of that sponge might not be able to wipe it out as easily as a present one thinks he does.

Prof. Haeckel should also remember, that those "Philosophers of the Schools," who believed in that "ancient fable," lived a great many years ago, and they may have had "outer muscles in their ears." If they had, then, of course, they were "very useful, enabling them to erect them," and listen to that "ancient fable." Therefore, we have nothing to say against that "obvious proof."

If those "Philsophers of the Schools" were now living, and after reading Prof. Haeckel's "History of Creation"—which he presents to his readers under a false title, and he tells them so—we have no doubt, that every one of them would put their heads into a "blind-sac," with a philosophical design of getting up a "violent inflammation" against that "Ancient Fable." Now, let us show you, gentlemen,

How Our Children, in the Public Schools, may be Enabled to Erect Their Ears.

Mr. Darwin agrees with Prof. Haeckel, and says:

"Man has lost the power of erecting his ears from *disuse*. The extrincic and intrinsic muscles are in our ears in a rudimentary condition. Most of us by often *touching* our ears, and directing attention to them, could, by repeated trials, *recover* the lost power of movement."

Therefore, it would be a great benefit to our children in the public schools to have them exercised in this respect. And a rule should be adopted, by our usually intelligent school directors, compelling the teachers, instead of standing the children in a corner for their short-comings, to wring their ears. Also, for the purpose of "directing attention to them," to issue an order—"Erect your ears, boys!" by which means they could "recover the lost power of movement so useful to their ancient ancestors." Besides, it would enable our children, when eating cherries, to listen, and hear when the cherry-stones dropped into their "blind-sacs."

Jubal, we have studied these subjects, and therefore have nothing to say against the Rudimentary and Reversion hypoth-

eses. Too many obvious proofs can be adduced to sustain them; proofs, such as Mr. Darwin, possessing, as you say, an extra sense, has been enabled to perceive and present. Mr. Darwin says:

"What can be more wonderful than that characters which have disappeared during scores, or *hundreds* of *thousands* of generations, should suddenly reappear perfectly developed, as in the case of pigeons and fowls. In the horse, there is a latent capacity to produce stripes; in families a latent capacity to produce additional digits, though they may not appear in many thousands of generations. In every living creature there are hosts of *lost characters lying ready* to reappear under proper conditions; various monstrosities come under this head; the characters being possessed by some early progenitor. The wonderful and common capacity of Reversion! This power of calling back to life long lost characters! These lost characters, having become rudimentary, like the tail, though not externally visible, is really present in man, in the terminal portion of the vertibræ, constituting the *os coccyx*, have the power of reappearing, which they are competent to do, though they may have lain dormant for many thousands of generations; being written, as it were, in invisible ink, yet, *get ready*, at any time, to *leap* into existence under the *requisite conditions.*"

Jubal, should we meet a man who would doubt this; one who would stubbornly refuse to accept such evidence, we would have but little respect for his intelligence, or ability to judge of what constitutes proof. In fact we have observed some such things ourselves. We have seen and known many men, also women, who have lost their characters, and which have lain dormant all their lives. We have heard of hosts of "lost characters lying invisible" in the woods waiting, but "ready, at any time, to leap into visibility under the requisite conditions" of the treasure-box of Wells, Fargo & Co.'s Express; that is, should the inner relations of the stage drivers be in accord with the outer relations of these characters. Many stage-driving "monstrosities come under this head."

The same in regard to some people possessing more and some less than the proper number of arms, legs, fingers, or toes. We know this to be true. There is Joe Beazel, who has but ten toes, and only eight fingers; he ran a saw-mill. There is Jim Dyer, who has but two toes on his left foot, he is, or once was, a wood-chopper. Then, there is Harry Steffens, who has no hair

on the top of his head, he once was married. And from domestic felicity, and the correlation of a pot-lid, Jim Stevenson has leaped back to an ancestor, who possessed a chronic black-eye; while the utterances of Bob Bangyoursoul give evidence of his having leaped back to some progenitor, who, like Mr. Darwin's ape, "growled like a beast of prey in order to give notice to his fellow monkeys of expected danger;" so, Mr. Bangyoursoul growls, in order to give notice to Prof. Haeckel's "unscientific theologians and philosophers of the schools" of the expected danger of his devouring that "Ancient Fable of Creation."

Besides, we have seen the "invisible ink" become visible in stripes and spots on horses in the circus. We often hear of a calf being born with extra legs. Spandigini saw a goat, perfect otherwise, born with two heads; and St. Clair tells us, that he saw a goat which was born without a head, but perfect in every other respect. Mr. Darwin does not speak of either of these goats, as "coming under this head." Yet, there can be no doubt, but that some early progenitor possessed those two heads, and some other, still, earlier progenitor, possessed the lost head. "Oh the wonderful power and capacity of Reversion!"

Prof. Helmholtz tells us, that "nature has taken many crooked ways toward an extreme perfecting;" but we are sorry she took the Reversion crook. We do not like this power she has given offspring of leaping back to some ancient progenitor, because we fear this might happen in our family; should it, we hope none of our children will leap back to that hairy fellow with a tail and wagging ears. Should we happen to have a boy, one that has leaped back to a fish, we would not care much, for we could eat him; or should one jump back to a sponge, we could use him; but, if we ever have a boy who wags his ears at us, we would not mind the time, even should it take us ten million years, we would develop stripes on his back, which will be as visible as they ever were on the back of any ancient progenitor. Since learning the truth of this natural law of Reversion, we have trembled, fearing that we might have a boy monstrosity; one who will not lie; always wants to go bed early, and get up in the morning at a proper time. One that will not steal things to eat, nor play "hookey" from school. One that

would rather say his prayers than cheat and lie when playing marbles. Now, although some ancient progenitors of boys have never evolved these characteristics, still the rudimentary organs which prevent some boys from doing these things, are still latent, but written in them, in very "invisible ink," and up to this time, lost characters of this kind of a boy monstrosity, have never appeared, never leaped into life, since the time of George Washington and Gen'l Andrew Jackson.

So we repeat, Jubal, that we have nothing to say against the assertion, that "in every living creature there are hosts of lost characters lying ready to reappear under the requisite conditions." There are, as Prof. Haeckel says, "too many obvious proofs" of this. For instance. There are the one-eyed organisms, the Cyclops; the hundred-eyed Argus; the three-legged—the Tripod; the three-headed dog, Cerberus, and the Mermaid. Then the Sphinx, an organism, which had the head and breast of a woman, body of a dog, claws of a lion, and a human voice, besides many other singular things which have been evolved and modified in the past, but which, although existing in a rudimentary condition, are "lying ready to spring, at any time, into visible existence." Witness the Siamese-twins, bearded-women, two-headed and no-headed goats, calves with five or six legs, some oxen and dogs with no tails, and some oxen with no horns. It will uot do to say, that some of these things are mythical. How do we know? It is not because some of them are not now visibly existing. If "last forms, organs, and characters can lie dormant for many thousands of generations, and yet are ready to leap, at any time, into life," then, the organs of that three-headed dog are still lying dormant, but ready, at any time, to spring into life, and seize the first three philosophers who sit down on the Tripod, as being a three-legged myth.

You must not forget, Prof. Jubal, that these things lived many years ago. Some of them nearly as long ago as the most ancient of fables. Give nature a chance; she never fails; she never makes a mistake; she will send along a one-eyed organism, a Cyclops, yet, and some of these days, when fishing, we shall be catching Mermaids in the Bay of San Francisco. The time will come when these things will reappear, and a man, then, instead of keeping three dogs on his farm, will need but one.

So it is all very well for those persons "who have not," as Mr. Darwin says, "attended to the recent progress of natural history," therefore, do not believe the doctrine of Reversion, to say, "mythical." The former existence of these things are not nearly as mythical as, that man was once a sponge, a worm, a fish, a lizard, or a sea-squirt.

Taking the foundation of Mr. Darwin's theory, by inexorable logic, let us test it, and see whether or not the sphinx, the clyclops or the flying-horse, may not have once existed, or may not even now exist, for, as the Arab, Algazzali, says: "the non-appearance of a judge superior to reason is no proof of his non-existence." So, if the fact that these things have never been seen by us is the *only* proof of their non-existence, we are not justified in denying their existence. To see a thing is proof that it exists, but not to see a thing, is no proof that it does not exist. There is no testimony of mankind affirming that these things, the sphinx, cyclops or flying horse have never been seen. There is only an absence of testimony that they have been seen.

Should it be said, "the knowledge and experience of all mankind has been, that these things have never been seen, therefore, never existed. This negative testimony, is not only illogical, but of no value; for we must not use the absence of knowledge or experience as equivalent to its presence. No one will deny, that these existences are within *possibility*. There is no intrinsical, natural nor metaphysical impossibility, for such creatures, which we call the sphinx, a man with one eye, or a horse having wings, to exist. There is no repugnance between the Predicate, *Exists*, and the subject: a flying-horse, etc. Their existence does not contain the essence of contradiction, therefore, it is possible, *absoluta*, for them to exist; and if *possible*, then, no negative testimony that they never have existed, because never seen, is of any value.

This negative proof of the non-appearance of a thing, being a proof of its non-existence, is what all you infidel philosophers base your argument on, when you deny the existence of a Supreme Being. Besides, the inference that beings do not exist, because not seen and known, is also unscientific. Science can neither affirm nor deny the non-existence of any being. Science can deal only with what it is cognizant of; beyond that, it knows

nothing. It can no more affirm or deny the existence of those so-called fabulous beings, than it can the existence or non-existence of non- corporeal or non-material, intelligent existences.

So, we say, Jubal, that it is not one wit more improbable, that in the past, evolution has produced the sphinx, the cyclops, the flying-horse and the three-headed dog, Cerberus, than it is, that evolution has produced from a gaseous vapor, animalcules; nor that from these, "from the *same parents*"; as Mr. Darwin says: "have sprung the monkey, the elephant, the humming-bird, the snake, the frog, the fish, etc," Besides, you must remember, that according to the law of Modification, when these, so-called, mythical organisms, evolved and modified their different kinds of organs, they found them, at that period, "very useful to them," like that large "blind-sac was to our vegetarian ancestors," for as Mr. Darwin tells us:

"All animals change and modify their organization to benefit themselves. Natural Selection will never produce in a being any structure more injurious than beneficial to that being. No organ will be formed, as Paley says, for the purpose of causing pain or for doing an injury to its possessor. Although an organ may not have *been* originally formed for some special purpose, if it *now* serves for this end, we can say, that it *is* especially adapted to it."

We call this good reasoning, and it beats Prof. Bunsby on his "If so be, why not? Therefore." But, upon what Mr. Darwin says, Mr. Wallace remarks:

"If, therefore, we should find in man, any characters, any specially developed organs, which would have been actually injurious or merely useless to him on their first appearance, then, it would prove, that some other law, or some other power than Natural Selection had been to work. But, if, further, we could see, that these very modifications, though *hurtful or useless* at the time when they *first* appeared, became in the highest degree useful at a much *later* period, and are *now* essential to the full moral and intellectual development of human nature, we should then infer that *the action of the mind, foreseeing the future, prepared for it.*"

Mr. Darwin regrets having to admit, that "if any being could modify structure for the good of another, it would annihilate his theory." So you see, Jubal, the way it came about, that all those things we have mentioned, became so different was, by

their evolving and modifying organs for their own benefit. Now you must admit that this is reasonable, and easily brought about by those "very simple laws of nature," and we can now understand, that when those Cyclops evolved their one eye, they found it very useful to them in their blacksmith shop; enabling them to keep an eye out on old Vulcan, their "boss," and see when he was coming; and, as two useful organs are better than one, they kept it up, until they modified into hundred-eyed Arguses.

Mr. Spencer tells us, that all "animals acquire means to gratify their wants at the least expenditure of force." Therefore, some ancient female, finding it required considerable expenditure of force to enable her to swim in the sea when taking her bath, went to work and modified her lower half into fish, thus evolving the mermaid. Now, the Sphinx, having a great hatred for men, developed claws like those of a lion, that she might be able to tear out the eyes of Œdipus if he did not solve her riddle. But Œdipus did solve it, and got the best of her, for she destroyed herself; and this is the only instance recorded in history in which a man ever got the best of a woman. Besides, woman is the only living thing that has ever evolved a certain oscillating organ, which, as yet, has not lapsed into the rudimentary condition. At any rate, Jubal, there is nothing mythical in this last case, viz: That there is one organ which has not lapsed, is never dormant, but is always full of active life.

We will present to you another strong proof; one, though not sufficiently strong to affect any of our five senses, still it affected, very sensibly, the additional sense of Mr. Darwin, for he tells us: "It seems almost certain, that any *ordinary* quadruped might be *con*verted into a Giraffe." Jubal, this, must be a typographical error, or else Mr. Darwin has forgotten to correct it in his revised editions. It should have read: "Any *ornery* quadruped cannot be *re*verted into a Giraffe." We know that Mr. Darwin is very careful, and generally correct in his sta e-ments, so we are sure that he did not mean to include the mule among the quadrupeds. He knows very well, that the mule cannot be *con*verted into anything. He knows, that the mule possesses firmness of mind, character, and external power of pedal back-action, and would resist any attempt, any effort to

saddle on him, an "*ancient* progenitor." Still, with this quadrupedal exception, the proof is all correct.

Notwithstanding those "obvious proofs" of Prof. Haeckel, and the reasonable suppositions of Mr. Darwin, their probability does not strike me with as much force as those of your theory, namely, that "when any new and strange thing appears on this earth which is *unlike* its parents, it is because its own peculiar molecules have just arrived here." This may have been the case with those things, which some persons call "mythical." The molecules which formed those Cyclops were, no doubt, one-eyed; while those of the Tripod were three-legged, and those of the three-headed dog, Cerberus, three-headed molecules, and if all these different kinds of molecules have been used up, we shall never see a living three-legged Tripod, nor hear three barks coming out of the same dog, at the same time.

We should certainly accept your theory, Jubal, in preference to that of Reversion, were it not for Mr. Spencer, who, from having discovered a "New System of Philosophy," is, of course, of the highest authority, and, therefore, does not go a nickel on Mr. Darwin's Reversionary facts; for Mr. Spencer, in his "New System of Philosophy," steers clear of all mention of Reversion, as it would upset his Synthesis, which requires, that variations should be regarded as ultimate facts, inexplicable by any law, save "the instability of the homogeneous." Were Mr. Spencer to admit that the varying individuals have degenerated, and that the appearance in any individual of characters similar to the ones which such individual's progenitors have lost, must be ascribed to the law of Reversion, it would destroy the foundation upon which his Synthesis rests. So he takes no notice of such a phenomenon as Reversion. However, in closing, we will say, we are satisfied that Prof. Haeckel has proved beyond, as we may say, an "obvious" doubt, that our vegetarian ancestors possessed a much larger blind-sac than their descendants, and no doubt, at the period when these ancestors lived, that the cherry-stones were in size proportionate to their *caecum*.

PROF. JUBAL.—Gentlemen, we shall not stop to comment on Prof. Credo's satirical-absurd style of argument, but, as we shall

seek for the progenitors of all organisms, we will first relate to you what

Preacher Congo Says of His Early Progenitors.

One day while writing, preacher Congo dropped in to see us. After laying down our pen, we told him, that we had just then finished writing our lecture on the existence of Rudimentary organs, and the law of Reversion; and explained to him, that according to Mr. Darwin and Prof. Haeckel, there are in all of us, existing in a rudimentary condition, many organs, characters and habits, which were once possessed in a perfect state by our early progenitors. Still, while these lost characters are lying dormant in us, they are ready to spring, at any time, into life. Thereupon, Congo said:

"Fessor Jubal, dat ez so, Mr. Darwin en Fessor Haeckel ez rite on doze pints. Take de case er my people. Doze filos'fers tells us, "dat de primeble home ob man wuz on de Afr'can Cont'nent, en dey proob, dat dar wuz de cradle er de human race—de wonder en de glory ob de univarse. Deze am dar own wurds. Yes, Fessor Jubal, our pro'gentors possess' de largest 'mount ob dark pigment; a sumf 'n dat gibs many adwantages ter doze wat hab it; en my people wuz once, ages ago, de greatest people on dis yearth in de art, science, en war; but owin' ter doze natural laws, peoples en nations, like species, 'volve till dey reach a sartin perfec'shun, or dar eq'librum, en den dey ret'ogade en degen'rate. All histor'ans hab 'corded deze fac's. All filos'fers ez 'greed 'pon deze pints, if dey isn't on nuffin' else. Fessor Draper sez, 'pon dis subjec'—Jubal please reed wat Fessor Draper sez:"

'The origin, existence, and death of nations depend on physical influences which are themselves the result of physical laws. Nations are only transitional forms of humanity. A national type pursues its way physically and intellectualy through changes and development, answering to those of an individual, in Childhood, Youth, Manhood, Old Age, and Death, and is the result of immutable law. When the equilibrium of a nation is reached, like old age in the individual, it degenerates and dies. No man can stop the march of destiny.'

"Now, Fessor Jubal, you hab only ter cas' yo' eye ober de worl' ter see dat Fessor Draper am correc'. You hab only ter

'zamine de records er de pas' dat hab bin presarved on de sheep-skin, papyrus, en de hieroglifics, ter fine' out, dat all great en larned nations hab got ole', degen'rated en died. Look et Egypt, Assyria, Greece, en Rome? No man cood stop de march er dar destiny. Dey hab all degen'rated, ret'ogaded en rewerted; but de organs en de characters wat made dar pas' greatness ez still rud'mentary en dar race; lyin' ready, et any time, ter spring inter life, ter agin perform de same functions, en be ez useful en ben'fical ez dey wuz ter dar ancient ancestors. Dar kin be no doubt, but dat en sum futur' time doze organs, characters en habits will leap inter life; en wen dey duz; wen doze los' characters er my people gits ter wurk; wen dat inwisible ink sho's hese'f, de records er de histor'an will agin sho' de prowess, genus, en 'telligence er my people. Wat doze futur' records mout be, I dozn't kno', but dar's one ting sartin, de bottom rale ez boun' ter git on top, shu'. En ez de doct'n er Revarsion ter de 'riginal arch'type ez troo, we kin jedge er de futur' by de pas'. Wat dat pas' hab bin, I mus' 'fer you ter dat ball-headed bundle er bad logic; dat fil'sofcal meat-axe, Mis'r Bob Bangyoursoul. Ef he mol'cules had bin agg'egated et de time er de Possels, he wood hab got dem 30 pieces er silver, en sabed poo' Judas de trubble er hangin' hese'f. Still, w'en Mis'r Bangyoursoul talks 'bout my people, he tells de troof; but he izn't ve'y 'tickler, en don't kyar much wat he sez w'en he talks 'bout de Lor's people.

"You see, Jubal, 'mong my people, dar wuz once a Congo chief called 'Hoo-da,' who, arter 'sterminat'n mos' er he enemies en gadder'n all de plunder en slaves he cood, tuck posseshun er de trone ob Boo-a-Zula, wid de title ob 'King Hoo-da de Fust,' en he hab'n h'ard er Mis'r Bangyoursoul's lectur' befo' de larn'd Bodies et Fuegee, 'vited he ober ter Boo-a-Zula, ter lectur' on de filos'fy ob Nuffin, en 'tickerley, how ter fil'sof'cally w'ar et en warm wedder.

W'en Mis'r Bangyoursoul arribed, de whole Congo people turn' out ter meet him. De jungles en de swamps wuz depop'lated. De burnin' san's writhed 'neath de tread'n feet er de mult'tood. So great wuz de agg'egation er de people, dat darkness cober'd de lan'; a lib'n night had spread her mantle o' de scene; de birds went ter roos'; de bats en night-owls tuck wing en s'arch er food, en de lion en de tiger lef' dar lairs ter

prey 'pon de sleep'n fawn, but w'en, like a doubt'n comet, Mis'r Bangyoursoul, riz 'bove dat ebony ocean, de whole hebens wuz lit by the dental-gleemins er de ivory en dè openin's er de people, ez dey welcome' he en shouts ob gladness, en wid de moosic er de Tum-Tums.

De King wuz seated on he t'rone, en w'en he wabe' he bamboo-scepter ez de sign fer silence, de ivory en de openin's gleem' no mo', en de black-pall er human darkness agin shroud'd de lan' en gloom. De silence was so profoun', dat a pin cood bin h'ard ter drap, ef dar'd bin one dar to drap, w'en Mis'r Bangyoursoul pinted hè doubt'n finger ter whar de hebens oughter be, en 'dress'n de King, sed: But, Jubal, dar's de 'port er de lectur, itse'f, en you kin read it better dan I kin."

Bob Bangyoursoul's Lecture on Nothing and how to Philosophically Wear it in Warm Weather.

Your must benign, and sable pigmented Majesty! I have been in many lands. I have been accustomed to meet and address the wise and learned of many juries. I have, with that happy faculty which I possess of garbling while quoting from the record of that "ancient fable of creation," seen intelligence gleaming from the eyes of the rabble. I have seen the beauty and manhood of many climes. I have seen refinement in all its elegance, and were it not for my innate modesty—a modesty which has been a stumbling-block in my "star-route" path through legal life—I would, with uplifted hand by conscience raised—If I have any conscience, which I much doubt—say: that in all my doubting experience and inability for making correct statements, I have never beheld such an array of voluptuous and transcendent beauty; such exuberance of lustful manhood; such dazzlings of intellectual light, as are now pouring their rays of wisdom from out the windows of their ebon-souls—Excuse me, your Majesty, we have no souls—I had desired to say, and, but for the before-mentioned modesty, I would have said all this.

Still, I desire to say, that in casting my Illinoion or "Sucker" eye around me, and peering through the gloom of this inky scene; this Utopian realization of beauty, manhood and refine-

ment; and, observing too, the intellectual ordeal through which I must pass; the wise and learned scrutiny to which I shall be subjected during my lecture, must, allow me to say, be my excuse, should I not descend to those depths of assertion; rise to those transcendental falsifications; burst out with that eloquence, or give utterance to the originality of my thoughts, in that fervant, vivid, and overpowering language which I am wont to do when I have a full-house, at four-bits a head, and the admission fees are in my trousers.

May it please your plumbago-tinted Majesty; the first part of my lecture, as an introduction, I will, with your permission, devote to Color. Nature, your Majesty, when in her gay and lighter moods, adorns herself in many varied hues, and seems to take delight in contrast; but when more grave and thoughtful, and when wishing to display her wisdom, strength and power, she clothes herself in Black! All painters well know its strength and power over all other pigments. All natural philosophers can point out to your Majesty, its wonderful effect when possessed by man, and are able to mark the standard to which he can attain in physical, moral and mental achievements—this standard being always in proportion to the density of the blackness of his epidermis—Epidermis, your Majesty, means the outer skin.

Professors Darwin and Haeckel, whose giant intellects spurn with philosophical contempt the evidences of the fabulous myth of a Creative intelligence, and who, with their evolutionistic crow-bars, have pried open the secret store-house of nature, and from out of the many crooked ways she takes towards perfecting, have selected the one which leads, in the physical and intellectual world, to the non-entity of Nothing. These philosophers and naturalists have shown conclusively, that those races of men in which the black pigment has been evolved, presenting in them a complexion so marked in its Erebustic and Plutonic quality and character, are more robust, more able to withstand climatic disturbances; more secure than other races when hiding in dark places; such as dense foliage, jungles, swamps and caves, thus being more able to survive.

My inky Boo-a-Zulians! I see before me a race—the only one existing on this ill-designed, ill-constructed and ill-governed world, that possess the requisite quantity and quality of cim-

merian pigment, which enables its possessor to attain to that standard; that transcendent perfection; that pinnacle of fame in art, science, philosophy, and still greater, to that higher intellectual achievement, of a firm belief in an unrevealed religion.

What, my raven-tinted friends was the origin of man? Where upon this speck of matter. this one, infinitesimal globule in an infinite ocean of worlds upon which we dwell, did he first appear? It was here! Here, man first saw the face and glory of his origin, the sun, that resplendant orb, that life-giving and sustaining Sire of animated nature. It was here! Here, upon this very spot of earth; here! where your Majesty now squats upon your throne of justice, truth and mercy; here! Within this torrid-zone; here! Upon the burning, blistering sands of ancient *Afrikeyah;* that nature worked this wonder out.

Listen, O, ye earth! and give ear, O, ye people! to the wisdom of the sages. Prof. Haeckel asserts, with that confidence begotten of a mind controlled by unbelief, that:

"In tropical Africa was the so-called Paradise; the primordial home; the cradle of the human race, and from the original have all the varieties of the species of man been produced."

Also, from his intimate knowledge of himself, he says:

"The Caucasian or white race, has, from time immemorial, been placed at the head of all races of men as the most highly developed and perfect; but, as among the varieties of the species, the Caucasian branch is the least important."

Listen to him, before whose discoveries those of Newton pale; that prodigy of nature, Mr. Darwin. Hear him bearing testimony to the fact, that:

"Upon the African continent our earliest progenitors lived. Some one ancient member of an anthropomorphous sub-group of apes first gave birth to man; the wonder and glory of the universe; and from their migration from this, their primordial birth-place, have all other races of men proceeded."

Thus the voice of scientific research; thus the voice of hypothetical testimony; thus the voice of a taking for granted history, from its first whisperings of an imagined beginning, to the trumpet-tongued guessing evidence of the present, proclaim the origin and superiority of the dark colored races of mankind.

I say again: It was here! Here, where the sun bends down and woos with amorous kiss these golden-sands, you were born!

Here, upon the banks of your ever-flowing Congo, you have dwelt! Here, lived those ancestors whose deeds are the triumphs of your fame! Here, they reared those seats of learning, those monuments of art, science, and philosophy, which have been the admiration of the world! Here, was taught and practiced that code of ethics, which has ever been the guide and pattern of the Apache and the Sioux! It was here dwelt those forefathers, the knowledge of whose existence has been handed down in the records of your own oblivious history, which teem of their wonderful discoveries in astronomy; their inventions in mechanics; their mathematics; their logic; their metaphysical reasonings; their code of morals, and their universal charity! It is from these records that we gain a knowledge of the beauty of their language, their music, and those ideal creations of the poet's brain; and still greater than all, the depth to which they sank; a depth that no other race has ever reached; the unutterable profundity of the abyss of philosophy. Ages before the great Skepticus was born, your forefathers knew, and proved, NOTHING.

My charcoal friends, your ancient progenitors were tattooed o'er with charity and brotherly-love. In their nasal protuberences they wore the rings of pity. Their loins were girt with mercy; and with their mother's milk they sucked in beauty. Cradled in justice, they became the handmaidens of liberty and law. Blessed by nature, they lived in ease and plenty. Malarial swamps rang with the music of their joyous songs, while inaccessible jungles invited their children to poetry and love. These ancestors, proud of their achievements, around their favored home, they built no Chinese wall of exclusiveness. Beneath the bushel's crest they hid no intellectual light. No selfish thoughts possessed their Erebustic souls. With that vigor of their manhood to withstand the climes and hide from foes, those ebon savants, with philanthropic love and zeal, carried their wisdom, skill and science into other lands.

In war, behold these ancestors crossing, like me when colonneling, in the rear, the Alps with Hannibal, and when returning home, still like me, behold them laden with spoil and plunder, I from rebel, they, from Italian homes, to revel in those sweet delights which virtuous deeds accord. Behold these savants

penetrating into Egypt! and, while looking at the Sphinx, wondering what it was. See them, with that indifference so peculiar to philosophers regarding any work of man, gazing upon the four cardinal points of Cheop's pyramid, and hear them, in their classic tongue, exclaim, "Dar's a heep o' rock en dat pile!" Contemplate some of these savants absorbed in morpheustian labor, while others of the expedition, after reasoning out with a natural logical exactness the chances of an Egytian dog being around, have gone to gather scientific melons.

Not satisfied with these efforts to extend their usefulness, behold them becoming the tonsorial and sandal polishing artists of the Ptolomies; while their deep-dyed daughters fair, as handmaidens of Cleopatrian Queens, attend the bath, and cleanse the chamber's need! And when, in after years, the "Star of Empire" took to going West, these savants, like the mythical kings of old, followed in its course, and as it settled o'er the manger of Colonial-birth in Indian Isles, see them lay their gifts of manual art upon the planting shrine of Labor. See them, while in the fields they worshipped, teaching the rude English and uncultivated Gaul, the art of making pure Jamaica rum.

Still pressing on, they further cross the trackless ocean; descry the promised land, and there, in the tar and cotton regions of the Carolinas; beneath the sacred shade of Plymouth rock; among the nutmeg-groves of Connecticut, they labor on with intellectual zeal and manual skill, to teach the less pigmented races how to draw from nature's store-house, those hidden jewels, Tobacco, Rum, and Mackerel. Surpassing Archimedes, they invented the hoe, and with the vigor of their manhood, guided by intelligence, they, from out of nature's bounteous bosom, extracted Hog and Hominy.

O, favored possessors of excessive pigment! O, brave and intellectual giants! O, refined and cultivated savages! Well may your laureated poet burst his sable throat, and, in burning drops of molten thought, rain down the torrent of his liquid song in words like these:

Hail to the sun! thou life producing orb;
"Sire of the seasons," of the climes, their lord;
Hail to the sun! thou source of heat and light.
Hail radient king! antithesis of night.

I sing of thee, and of thy favorite land,
On which thou pour'st thy bounties with unsparing hand;
My lays are chant, in Afric's liquid tongue,
The glories of my people—children of the sun.

Land of the sun! beneath whose vertic rays
The lion crouches, and the tiger plays;
Land of the sun! 'tis in our torrid zone,
That ease and plenty reign, and toil's unknown.

Within whose jungles dense, great seats of learning rise,
And temples to the Lizard-god, kiss the azure skies;
Where Liberty and Law, her dark-skinned sons adore,
The praises of whose virtues, resound from shore to shore.

Thrice happy land! where art and science reign,
And where voluptuous pleasure, leading in her train
Her sons and daughers, who, in eager haste,
Present extended lips, the joys of love to taste.

In gorgeous breech-clout thy valient sons are drest,
And thy young maidens, with uncovered breasts,
Through palmy-groves, their sylph-like forms do glide,
As to harmonious Tum-Tums, ecstatic feet do slide

Throughout the Gum-jum dance, where corns too often feel
The hard, but pleasing pressure of protruding heel.
In vertic heat they woo, reclining on the sand,
While with peculiar odor, they perfume all the land.

And where, while Night her sable-mantle spreads,
In deep'ning gloom, above their loving heads,
And casts maglignant glances as she views,
With envious hate, some things of darker hues,

Who might dispute with her the right to reign
O'er all the realms of Pluto's dark domain;
They slumber deep, on sandy beds of ease;
Lulled by the tuneful Zebub, they wot not of the fleas.

All Hail, King Hoo-da! Let thy peaceful reign
Attest thy mercy, by thy thousands slain;
And when with plunder from Timbuctoo's shore,
Thou com'st from wading in Ashantee's gore;

From slaught'ring fields, destroyiug all their braves ;
There child'ren slain, their women kept for slaves ;
Then hail, Great King ! o'er Congo's realm to reign.
Accept, Oh, Ju-bub Moloch ! this tribute to thy fame.

My Etheopic Boo-a-Zulians, in compliance with the demand of his Most Charcoalistic Majesty, I will close my lecture with NOTHING and endeavor to point out how to philosophically wear it in warm weather. I do not see, my sooty-friends, what improvement I could suggest in regard to the wearing of nothing physically, beyond what I now see before me. With your own good taste, and from your long experience, you have approached as near perfection in this respect, as few but those possessed of microscopic eyes could well suggest improvement. It is possible, that a less amount of loin habiliments might improve, but certainly, a total absence of the imaginary fig-leaf would be perfection itself.

Still, your Sable Majesty, while I do not know whether you meant the wearing of Nothing, physically, or, as a bright jewel in the mind, I do know, that while unscientific ignorance stalks abroad ; while belief and superstition, like hideous nightmares, have seized and sit upon the minds of men, holding them in the iron grasp of faith, and bowing their willing knees before a Supreme Intelligence, there can be no such thing as reason. And, as the blighting blast of Revelation has not yet reached your happy land. I presume, that your Majesty desires to gain additional knowledge of that which you already know, namely : Nothing. I will, therefore, proceed, and explain to you in what Nothing consists.

Nothing ! Thou entity of universal non-existence ! Thou sire of annihilation ! Thou ever-present mother of illusion ! Thou deluder of sentience ! Thou infinite void ! How few there are who worship at thy shrine, or lay their reason's gifts on thy oblivious altar. Nothing ! O, that another Skepticus would arise, and, like the Gaulish Knight of Navarre, wave his black plume of doubt in the winds of faith ; while, with his nothingarian battle-axe, he hurls *nix* into the cohorts of belief !

It is said, that Skepticus once lived, and was the most wise and learned of all our transparent pigmented race ; possessing

the greatest mind ever produced from Albino stock. His geneology is unknown, but as his mental powers approximated in a slight degree to those of a Boo-a-Zulian, historians have been doubtful as to his origin. But the great Evolutionistic philosopher, Mr. Darwin, has shown us how, by the laws of Heredity and Natural Selection, his geneology may be traced, and his origin accounted for. Mr. Darwin tells us, that:

"Like begets like, the offspring is like the parent"—also, that—"the larger sized organs for offence and defence; the beauty of plumage and the singing voices of the males to charm the females, are transmitted by generation to the *males only*"—and has proved, that—"cross-breeding improves a race."

Thus my ebony-toned Boo-a-Zulians, some one of your sable-hued ancestors, migrating from his plutonic home in search of spoil or pleasure, and being subject to the law of natural selection, may have become enamoured with some Albino maiden; thus as "like begets like," and the superior qualities of the male being transmitted to the offspring by the *father only*, would account for the origin of the immortal Skepticus. If such be the case, the nothingness of his doctrines, and the illusions of his doubting mind, can be accounted for; if this does not, then, Nothing can.

Your blackest of Majesties! I have burned the midnight kerosene; I have pored o'er the few sheep-skins which the destroying hand of time has left us of the non-existent works of Skepticus, until my brain has become as naught. Most of my hair, which once bristled with belief, has fallen, while that which remain around the base of my sensorium, I may liken to the inscription on the base of London's column, so well described by Pope:

> "See London's column pointing to the skies,
> Like a tall bully, lifts its head and *lies*."

I have gone with Skepticus deep down into the depths of philosophical Nothingness! I have bathed with him in the ocean of Doubt, and dried myself on the jack-towel of Illusion! I have eaten off his table of Skeptical-certainty, and picked my teeth with the tooth-pick of Non-belief! I have slept with him in the bed of Fiction, and taken a non-existent cocktail out of a non-existent demijohn in the Chaotic morning! I have drank so

deeply of the irrationality of his philosophy, that I have become inebriated with Nothing! Thus, from the wisdom of the master, I am enabled to stand before you in the dignity of my manhood, and with that mythical god-given gift, Reason, declare to your Majesty; to this lip-protruding, epidermis-glistening assemblage, and to the existing non-entities upon this mythical sphinx of an imaginary world, that I know Nothing! I laugh to scorn the testimony of the ages; and with contempt, throw back the fable of history, that man has always believed Something; while the tears of pity for man's delusion, trickle down my doubting nose.

I am a lawyer; a "star route" lawyer; a fee-accepting lawyer, and have studied nature's laws. Nature was from the No-beginning! She is the universal Was! She is the infinite Is! She is the eternal Something which is Everything! She is the mother of Nothingness! The queen of Destiny! The ruler of Fate! The immortal Judge! The executioner of colossal Chance! She came into existence through Law! She made her laws before she made herself; and through her laws she Self-existed! By law she governs herself, and emancipates herself from Obedience! She is the top-rail of her own Actions! She oversees, instead of being overseen, and is the fulminator of her own Decrees!

"When the womb of time," to quote a doubting philosopher, "was pregnant with all the future;" when that future was born, its glorious mother, Nature, in nurturing it, produced "non-existent and impossible laws," and by "Force" administers them. She issued her emancipation proclamation for universal submission to her will, and woe to the atom that disobeys her! Entrancing Jezebel of Liberty!! Effulgenated Czarina of Freedom!! Annihilating breaker of Shackles!! Sweet Goddess of Do-as-you-please!! how I love thee! I bow my independent knee of submission, and worship at thy shrine of Liberty, O, Nature!!!

I desire to recall to the opaque mind of your coal-tinted Majesty, what you and your learned philosophers already know, that the brain of man is formed of molecules, which are of different kinds, qualities, and are assorted into sets; that it is by the aggregation of each peculiar set which forms and constitutes each different quantity and quality of brain; also, that our

thoughts, feelings and sensations are the result of their action; and, that, at what we call death, these molecules disintegrate and shrink back to their original germ state; to their original place in the universe; into the bosom of their mother, Nature. Your Majesty is also aware, that it is over two thousand five hundred years ago, since the disintegration of the molecules which, at that time, formed the brain of the immortal Skepticus, and that no such molecules have since been known to have aggregated in any other brain in equal quantity and quality. Doubting molecules are constantly aggregating and forming philosophical brains, and these being of different kinds and qualities, are the cause of that unanimity of opinion for which philosophers are so celebrated.

Thus, from the time when that difference of opinion occurred between that mythical Lord and serpent, as to the results which would follow from the eating of that mythical apple, philosophers have been unanimous in opinion, that Truth has never been found. The philosopher, Democritus, said he had found it, and that it was down in the bottom of a well; but Skepticus, wiser than he, asked: "How do you know?" thus showing the different action of the peculiar molecules constituting their different brains.

Another case in point; one much easier of varification; one which can be decided by any competent, honest, "Star-route" Judge, or jury, whose sense of touch has been intensified by the knowledge of a future hope being realized; and who, from the seductive eloquence of those who picture to their minds a worn-out, tattered, maxim, that "virtue shall have its reward;" and who, too, from gazing at the sun of Justice, which never shines through the misty mazes of the law, unless 'tis tinged with a "greenback" hue, will enable your Majesty to understand, that honesty is but a name, a warp, a woof, a web, which superstition weaves around the minds of men; but leaves their bodies, and their *pockets*, naked.

But to our point: As molecules govern the actions and form beliefs of men, the molecules of the brain of Skepticus did not believe their own belief, but doubted their own doubts; while those of my brain, believe their own doubts, but doubt their own belief. [That star route jury agreed with me.] The mole-

cules of the brain of Skepticus believed, that matter, the world, and all we see and feel are but imaginations and illusions. [That star route jury disagreed with Skepticus.] They *saw* and *felt* the Federal spinal-column, green. While the molecules of my brain believe and doubt simultaneously, yet, they concur in the opinion, that to feel an illusion, is not to see a fee; that the anticipation of a fee, is the matter upon which the imagination feeds, until the illusion is dissipated by the perception and reception of the visible reality. Thus, while the molecules of the brain of Skepticus caused him to ask Democritus, "How do you know?" those of my brain prompt me to know, without asking, How do I know? Hence, about the only things I do know, are the existence of a retainer, and the non-existence of my own consistency and literary honesty. But notwithstanding all this, your wool-crowned Majesty, the great and transcendent power of the intellect of Skepticus was, that he could grasp NOTHING, and hold it up to the admiring gaze of all philosophers.

PROF. JUBAL.—The reporter, gentlemen, who took down on his shirt-cuff, Mr. Bangyoursoul's lecture at Fuegee, was the same who reported this lecture, and he adds, that "upon closing, the form of Mr. B. appeared to gradually fade away into that abyss of Nothingness, which he had so luminously and logically demonstrated. When, upon King Hoo-da asking: 'Whar's de genl'men?' a sound from out the depths of that abyss, like an Agnostical voice clamoring for an appearance, answered: "NOWHERE."

We thanked preacher Congo, and requested the loan of this lecture for the purpose of reading it to you young gentlemen, believing, that you would then be enabled to see how clear and logical Mr. Bangyoursoul can be, when he holds forth to a full-house; asserts much; proves nothing, and has the admission fees in his pocket.

EVOLUTION AND NATURAL SELECTION.

We will now, gentlemen, take up Evolution and Natural Selection. The indispensable criterion of every real law of nature is its exact conformity to established facts, such as the accepted theories of physics and astronomy. Therefore, when we are

examining any theory for the purpose of testing its exact conformity to established facts, it is right and proper, that we give full credit to the proofs which are brought to sustain it; by so doing, we are testing the probability of the theory. So, in our examination of the proofs which Mr. Darwin and others adduce to sustain the theories of Evolution and Natural Selection, we shall, as we have already stated, find them to be such as not to be gainsaid; and no reasonable philosopher would attempt to gainsay them.

Like the novelist, who must have a hero of some kind, so the philosopher must have a theory, and, in order to sustain it, leads his readers along the many paths of supposition, assumption, and taking for granted. The novelist, likewise, endeavors to fascinate while leading his readers through all sorts of intricate, doubtful and troublesome ways, until, at last, he renders them happy, by marrying Alonzo to Mellissa. Still, while the novelist is not compelled to marry Alonzo to Mellissa, all natural philosophers like Mr. Darwin, are compelled to marry the man to the monkey.

Again. Like the novelist, who must keep his plots within the bounds of possibility and probability, so the philosopher, within these bounds, is compelled to account for each and every phenomenon when it presents itself, and is embraced within the scope of his theory.

Consequently, those theories have to account for the difference in structure, form, size, color, habits, and degrees of intelligence of every living thing on the earth; every living object which affects our five senses, by and through which only, either directly or indirectly, can we know of their existence.

In addition to accounting for the different forms of organisms, observe how easily and reasonably these theories account for the phenomena of love, hate, lying, beauty, blushing, laughter, grief, marriage, and its concomitant, misery. How were evolved hunger and thirst, the eye to see, the ear to hear, the nose to smell, the tongue to taste, and the nerves to feel? The air-bladder of the fish, the lungs of the mammal, gizzard of the bird, two stomachs in the camel and the cud in the ox. Why the elephant evolved his horns in his mouth, and the ox his horns on the top of his head. How men can and do talk, how monkeys can talk, and

why they will not. Why some men can fiddle, and so can some grasshoppers. Why man walks on two legs, some fish on no legs, and some other things on, from four to a hundred legs. Why man, sometimes, commits suicide, and, also, some scorpions and salmon; with many other contradictory actions of things in animated nature. Thus, proving the assertion of Prof. Helmholtz, that, "nature delights in contradiction, and has taken many crooked ways towards perfecting," which fact sustains Mr. Darwin, who says: "Some contrivances in nature are far from perfect."

Gentlemen, you know that all those things which we have mentioned, exists, and, that all those actions are performed; but as to the proofs of some few of them, should we be slightly sceptical, you must not mind this, but keep your eyes fixed on those bright lights; those hypothetical stars; those theoretical orbs; those taken for granted meteors, which flash and dart across the heaven of natural phylosophy; and, with abiding faith, point your fingers to the oriflamme of the probable truth of Evolution and Natural Selection. In so doing, there must exist no such legitimate doubts in your minds as existed in those of Skepticus and Bob Bangyoursoul.

Mankind are dependent on each other for instruction and knowledge, so, in order to learn the way in which all the variations among living things have come about, we will first consult Mr. Darwin. The theory through which Mr. Darwin has been placed at the head of all our knowledge of nature, is usually called the Doctrine of Filiation, or the Theory of Descent. Some term it the Transmutation Theory. Both designations are correct. Mr. Darwin says:

"All species of insects, all species of fish, all species of plants and all species of animals, the mastadon, mammoth and man, which ever existed or still exist on the earth, are derived from one single or from a very few *single forms;* that they have *developed themselves* from these in the natural course of a gradual *change*, until they have produced what we now see around us."

As some persons are Agnostical in their minds; not willing to admit that they know anything but appearances; asserting that nothing whatever can be really and absolutely known; and as the process of transmutation has never appeared to them,

they have doubts of its truth. So, Prof. Draper, being aware of this unhappy condition of mind in some persons, says :

"The doctrine of the transmutation of species has met with no little resistence. Those who have refused to receive it as one of the truths of nature, have, perhaps, not given full weight to physiological evidence."

We, for our part, are inclined to be a little Agnostical upon this point, as the phenomenon of transmutation has never appeared to us. If such phenomenon exists, it would upset all our philosophy, as it would prove, that one thing can be changed into another and different thing ; of different essence, substance, form and nature ; thus causing a thing to become other than itself. Kant calls the doctrine of transmutation, a "hazardous fancy of the reason." But leaving aside this one part of the mode by which Mr. Darwin has, from the primordial animalcule, built up all the various forms of animal life, it is right and proper, that we should commence at the same point at which Mr. Darwin commences, as he is not responsible for species being produced in any other way than in that which he says they were produced. Therefore, taking the animal species, as Mr. Darwin has fixed on the animalcule as the starting point, let us again see what it is, so as to enable us to understand how easily the mastadon, mammoth and man could —leaving aside the possibility of woman—have been evolved, transmuted and derived from it.

Although some of these animalcules are so small as not to be seen under the microscope, yet, those which can be seen, are terrible breeders. Prof. Huxley tells us, that

"An animalcule visible only under a high magnifying power, is calculated to generate 170 billions in four days, and some species [Mark! '*some species*'] are so small, that one drop of water could contain as many individuals as there are human beings on the earth."

Ganot, in his work on Physics, tells us, that

"One drop of man's blood which might be suspended from the point of a needle, would contain about a million of globules. In these globules, the microscope has disclosed to us the existence of insects smaller even than these particles of blood ; the struggle for existence reaches even to these little creatures, for they *devour* still smaller ones."

We simply observe here, that as we find hunger in these little monsters, it goes to prove what Mr. Darwin asserts, that "hunger was evolved, in order to induce animals to eat." Still, some of you young gentlemen may think from this discovery, that hunger and the origin of species must be accounted for prior to the existence of these little animals, and may say: "If the primordial animalcules were *hungry*, and divided into *species* at that stage of existence, and as 'like begets like, the offspring is like the parent,' you cannot see where the origin of species and hunger by Evolution, Transmutation, and Natural Selection comes in." But wait; you must not get behind Mr. Darwin's starting point. He explicitly says, "primordial animalcule." You, therefore, must give his theories a chance. By reflecting, you will come to the conclusion that Mr. Darwin is correct, for animalcules are still in existence, are now in your blood, and in the water also. They are beings; they are born, live, and, what we call, die.

According to Prof. Maxwell, it takes two million of molecules to form the smallest living object—one of these animalcules—that can be seen under the microscope, consequently, if we give them sufficient time, some of those which can now be seen wriggling under the microscope, may evolve and naturally select to become a horse or an alligator. And should they die before they evolve even into a lizard, it will be, according to Mr. Spencer, because, when they get through devouring those smaller fellows, or rather, when their inner relations get in *dis*accord with their outer relations; stop integrating any more matter, and commence absorbing motion—which is Dissoulution—they will simply do what the mammoth does; shrink back to their original condition in the imperceptible.

We do not think it necessary to trouble Mr. Darwin to evolve, etc., one of these originals until it becomes as large even as Mr. Spencer's speck of jelly, which is all organs at once; for he tells us:

"In brief, this structureless speck of animated jelly is *at once*, *all* arm, *all* hands, *all* muscles, *all* mouth, *all* intestines, *all* stomach, *all* skin, *all* limb, and doubtless too, *all* lung."

We suppose, gentlemen, that you never knew until we informed you in our first lecture, that a structureless speck of jelly could

possess so many structures *at once*. However, you have but to remember what Mr. Darwin has told us on the time question, to understand how some of those originals must have done considerable evolving; how many millions of generations of them must have lived, transmuted and died before they became as large even as that speck of jelly. You must also remember, that up to this stage of their evolution, they possessed no sentience, as this was not evolved until that jelly-fish had a belly on which "the mind stuff" molecules could form film, as Prof. Clifford in his essay, "On the Nature of Things in Themselves" has shown us, wherein he says:

"The molecule, I shall call it *mind stuff*. A moving molecule of inorganic matter does not possess mind or consciousness, but it possesses a small piece of *mind stuff*. When molecules are so combined together as to form the Film on the underside of the jelly-fish, the elements of *mind stuff* which go along with them, are so combined as to form the first faint beginnings of Sentience. When matters take the complex form of a living human brain, the *mind-stuff* takes the form of human consciousness, having intelligence and volition."

Thus we can see, that until the jelly-fish stage of evolution, the animalcule had not sufficient mind to naturally select. But, great Susannah and the Elders! what evolving, transmuting, filiating, modifying, selecting, and mammilian-organ producing there must have been; what according of "internal relations to environment;" what stowing away of "rudimentary organs and characters ready to leap into life in some future descendant;" and what an enormous amount of "invisible ink" must have been used, before that speck of jelly got to be as large even as a baby sardine. Still, these animalcules can accomplish more than this, if we give them time and opportunity, the "materials are there, it only needs the necessary combinations;" but, of course, before they can succeed, they are compelled to use a considerable quantity of Mr. Spencer's "Force," in what Mr. Darwin calls their "conflict with individuals;" and be obliged to take a few of Prof. Huxley's "occasional leaps" toward Lamark's "perpetual effort to improvement;" or else, they must possess Vestige's "prolonged development of their embryos," in order to assist them in acquiring those "extraordinary births" of Professors, Owen, Mivart and Parsons.

Yet, in whatever way a structureless speck of jelly unjellies itself, it must be done in some of these ways, or else in Mr. Spencer's way, through "Force, a mode of the Unknowable." Leaving aside our own theory, that of specific sets of molecules, belonging to each object, we think, that of the many different supposed ways, in which these animalcules increase their size up to that of the mammoth, the most probable one is, that of Natural Selection, because Mr. Darwin has shown us how it can be done by that law. He says:

"In North America, the black bear was seen by Hearne swimming for hours, with widely open mouths; thus catching, like a whale, insects in the water. If the supply of insects were constant, and if no better adapted competitors did not already exist in the country, I see *no difficulty* in a race of bears being rendered by Natural Selection more and more aquatic in their structure and habits, with larger and larger mouths, till a creature was formed as monstrous as a whale."

Gentlemen, we see no reason why this should not be so, and the reason why Mr. Darwin sees no difficulty in black bears—we suppose it is necessary for them to be black—becoming as monstrous as whales is, not that their skins are too tough to stretch to the necessary size, provided, of course, that they have no competitors, and have a constant supply of insects; for it is well known, that it is not by catching flies and water fleas only, which have made whales what they now are, but, it is also owing to the elasticity of the theory of Natural Selection. This was the case with old "Polonius," who, while having to bear with Hamlet's cranks when "harping on his daughter," the elasticity of his imagination enabled him to see how that Denmark cloud looked "very like a whale."

Since learning this fact about the bears and whales, we have no cause to doubt, but every reason to believe, that when the whale swallowed Jonah, it thought it was swallowing an insect, and as Jonah survived under the unfavorable conditions of his environment, we see no difficulty, provided, again, that there did not already exist in the interior of that "whale-country any better adapted competitors," in Jonah, had he used his locomotive organs, acquiring such an enormous rate of speed, as to become able to walk a thousand miles in a thousand hours during his sojourn in the whale's belly; nor in the physiological fact, had

he, in his pedestrian exercise, exceeded the thousand miles, and walked beyond the whale's diaphram, that he would have made it sick in the stomach, and thus have thrown Jonah up; because, at that period, whales had not, as yet, modified and fitted their internal relations to accord with that sort of food. Like Mr. Darwin and ourselves, gentlemen, you will find no difficulty in accounting for anything, if you only know how.

As we have already stated, we will not trouble Mr. Darwin to evolve, transmute, nor naturally select from the animalcule up to any particular thing, but, as the fish, if not the most ancient, is one of our remote ancestors, therefore, we will commence with the fish; but, great Christopher Colon Sardine! what evolving that poor speck of jelly must have gone through before it got to be a fish; and then, for it to take walks, climb trees, develop lungs and legs before it evolved into a lizard; but, of course, the fish had first to evolve an air-bladder before it could become a decent fish; and as our lungs were produced by the swim-bladder being modified, let us first allow Mr. Spencer to tells us how the swim-bladder was developed.

The Swim-Bladder.

In his "Biology." Mr. Spencer says:

"Fish often put their mouths partly above the surface of the water, so that in closing them they take in bubbles of air. If a fish that has taken in a bubble turns its head downwards, the bubble will ascend to the back of its mouth, and there lodge, and coming within reach of the contractions of the oesophagus, it may be swallowed. If, then, among the fish which have taken in air-bubbles, there should be some slight difference in the alimentary canal that facilitate lodgment of the air, it must happen that if an advantage accrues from the habitual retention of air-bubbles, those individuals will be more likely to survive. Their descendents inheriting their peculiarities, and increasing them an established structure and an established habit will arise."

You remember, gentlemen, what we stated at the commencement of our lectures; that no philosopher can make one move, nor advance one step toward proving, or even explaining his philosophy, without adopting that of Prof. Bunsby. "If so be, why not? Therefore." But Mr. Spencer goes further than Prof. Bunsby, and says: "must happen." Therefore, this is the way

in which the swim-bladder was produced. So, we have this much proved, and how easily and naturally done. Before this, of course, the fish had to get along without a swim-bladder, we do not know for how many million of generations, but it got along. Then after this, some other fish fellow took a notion to take a walk, and finding that his "alimentary canal" was in the necessary and proper condition, "the action of his mind," as Mr. Wallace says: "foreseeing the future," that it would be an advantage to him to have a pair of lungs, he "prepared" himself for these, by gaping; but he found it necessary to turn his head upward this time. So, let us hear Prof. Von Baer tell us how we mammals came by our lungs, legs and feet. Von Baer says:

"A fish swimming toward the shore, desires to take a walk, but finds his fins useless. By repeated efforts, the desire increasing in proportion to its inability of attaining its object, the fins diminish in breadth and at the same time elongate. This goes on with the children and grand-children for a few million years, when at last, to their astonishment, they find their fins have become legs and feet. The walking fish sauntering in the meadows finds no water. How perfectly natural for him to gape for air, thereby, in a few million more years developing lungs. The only difficulty being, that in the meanwhile, a few generations must manage to live without breathing at all."

Gentlemen, Mr. Darwin, with his additional sense, and Messrs. Spencer, Haeckel and others, without any additional sense, give us Von Baer's statement as a proof of modification of organs. In quoting a portion of this statement of Von Baer's, Mr. Spencer says:

"The adage, 'that truth is stranger than fiction," applies quite as much to Nature in general as to human life. Now, the facts are, that certain fish do 'take a walk,' without any obvious reason; that they ramble on the land; and a still more astounding fact is, that they climb trees eight and ten feet high. So, there is no difficulty in understanding how, by infinitesimal steps, the air-bladder may pass into complex and ever-moving lungs." * * * * "Again, suppose a creature takes to performing some act in an unusual way—leaps where its kindred crawl; eludes pursuit by diving instead of swimming; escapes by doubling instead of by sheer speed; clearly, perseverance in the modified habit will be a physiological gain. By increasing the chances of escaping destruction, it increases the chances of leaving posterity, and result in the survival of the fittest."

How Flying Fish Were Evolved.

Now, that we have the fish up a tree without flying up, before we show you the strength of these proofs, let us see how, and why fish came to fly, and in places too, where there are no trees nor anything else on which to alight. Mr. Darwin says it came about in this way:

"Flying fish have been modified into perfect winged animals; although they first acquired these organs to escape being devoured by other fish."

So, we have this much more proved, and can now understand how perfectly natural it was that the fish came to be evolved before the swim-bladder; and, in its evolving the swim-bladder, how much more natural was it, that is, if its "canal" was in the proper condition, for the "bubble of air to lodge in the back of its mouth," instead or paying toll and going through the canal. We can also understand why the fish, finding his swim-bladder full of air, should "desire to take a walk and ramble on the land." Therefore, we need not he astonished, if the fish was, to find in an evolutionistic short lapse of a few million years, that it had lost its fins in the grass, but found a pair of legs, or, perhaps, several pairs. Then, again, most naturally, the fish should desire to do what every good, pious boy does now; "climb trees without any obvious reason," unless it may be to rob the bird's nests; but this could not have been the reason in the fish; because at that geological period birds had not yet been evolved. Still, for any reason, "obvious" or not; for if, in climbing, the fish should get out of breath, "how perfectly natural it should be for it to gape for more;" thus, by gaping for only a few million more years; Astonishment would again, like Wonder, a soft-shell crab, or, "Mr. Bumble" on a monument, make the fish smile to think of the grief it remembered feeling a few million years ago, when it could not breathe. But, at last, it gives it up, and is no more astonished at anything; because up to this stage of its evolution, its desires have all been gratified, and, so far, has not found it necessary to transmute.

Whatever creature this fish may have been afterwards evolved into, at this stage of its evolution it finds, that "it can leap where others have to crawl;" and should it, in its rambles, happen to run across some other kind of a fellow who has

evolved a longer pair of legs than his, he just doubles on him. But should the other fellow have also evolved the doubling faculty, then, of course, he makes for the water, out of which he remembers coming some few million years ago, and dives for it, thus proving he was the "fittest to survive."

As to the "flying-fish modifying into perfect winged animals," this is a palpable proof of the origin of Pegasus, the flying-horse; and as Pegasus had not forgotten how necessary water was to his ancient progenitors, he, to obtain which, acquired the habit, or he had leaped back to some ancient progenitor who possessed the habit, of striking the ground with his hoof, thereby causing the water to spring forth. These flying-fish were also the progenitors of the flying-lizards and flying-dragons of the chalk period, with wings over 17 feet from tip to tip. But this breed have degenerated, retrograded, and have come down to the dragon-fly. Still, although flying-fish molecules are as yet plenty, and are still coming, those which form flying-horses, flying-lizards, and flying-dragons are scarce.

Reptilia.

The next in the order of Evolution are the Reptiles. These being such nasty, ugly things, we have no desire to show you, gentlemen, how they were evolved. We doubt very much if they ever were evolved. If so, they must have had a "prolonged development of their embryos," and could not have "taken any occasional leaps," but jumped all at once into perfection. We have too good an opinion of Evolution and Modification, to believe that they had anything to do with producing the *reptilia*. And as to Natural Selection, what sort of a collection of climbing, crawling, leaping, flying, doubling, diving, creatures, do you suppose they could have been evolved, for the snakes, lizards, crocodiles, and especially the alligator—the mean, big-jawed, nigger-baby eater—to select from? No; we will not evolve nor modify these. We will let them come in an unnatural way; and we wish that their time had come to go in an unnatural way. We wish that their "internal relations would not keep in accord with their environment;" then, they would stop integrating; commence "disintegrating matter, and

absorbing motion, "which would be the last of them;' because, this, as Mr. Spencer says, is "Dissolution."

How Birds were Evolved.

The next in the order of Evolution are the birds, and it affords us great pleasure, gentlemen, to show you how they were evolved. We differ with Geoffery St. Hilaire, that "birds originated from lizard-like reptiles, the scales of the reptiles becoming the feathers of the birds;" for birds are pretty things, and good to eat, except the crow and buzzard; and they sing sweetly, except the goose; and roost high, except the chicken; and fly fast, except the ostrich. Besides, it is not flying particularly, which constitutes the species called the bird; because, some animals fly—the bat and squirrel, some insects and some fish. One peculiar thing which separates the bird from other organisms, is the gizzard, so, as Mr. Spencer has been kind enough to inform us how the swim-bladder in the fish, and the lungs in the mammal have been evolved, we will ask him to inform us in what way the bird has been produced.

Origin of the Gizzard in Birds.

In his "Biology," Mr. Spencer says:

"The bird, unable to masticate its food, has a grinding chamber, lined with a thick, hard cuticle, capable of bearing the friction of the pebbles swallowed to serve as grind-stones. The gizzard of the bird is an expanded portion of the alimentary canal, and is specially fitted to give the food that trituration which the toothless mouth of the bird cannot give. How did this immense modification of alimentary canal originate? Does change of direct structure arise by direct adaptation? There is warrant for the belief that it does. If differentiations produced in the individuals of a race under changed habits are in any degree inheritable, a structure like a gizzard will *originate* through the direct actions and reactions between the food and the alimentary canal."

You ask us, gentlemen, "if the direct actions and reactions between the food and the alimentary canal have produced a gizzard in one creature, which had no teeth, and which swallowed its food unmasticated, why should not the same actions and reactions have produced the same modifications in other creatures which have no teeth, and which swallow their food unmasti-

cated?" As Mr. Spencer has not explained this, we are not prepared to answer the question directly, but, as it is a fact in nature, that the bird is the only creature that has modified a gizzard, we will endeavor to explain to you how it may probably have come about.

The bird, like all organisms, having been evolved, and being but a modification of some other creature, it, therefore, while passing through, and being, as we may say, a part of the different creatures from which it was evolved and modified, did not need a gizzard, as these creatures did the masticating; but when the time arrived, and evolution had modified some two of these creatures into a pair of birds, they found that they had no teeth; but, being compelled to eat, it became necessary for them to find some means by which they could grind their food. They must have known this was necessary, or they would not have commenced modifying an organ for that purpose, as all creatures modify organs only for their own good. How long they lived in a condition of inability to digest their food, we know not, perhaps a few million years only. However, the time had arrived when they needed something for that purpose, so they modified an organ. In accomplishing this, observe the foresight of these creatures; contemplate the "action of their minds in preparing for it;" admire their ability to judge of cause and effect, and their skill in constructing the necessary organ.

They first "expanded their alimentary canals, then, developed grinding-chambers, and lined them with thick, hard cuticles of the necessary strength to resist the friction of such pebbles as they might hereafter swallow to serve as grind-stones."

They were compelled to first do all this, for had they not done so, the pebbles would have played, as some people say, "hob' with their internal relations. This is plain, and what must have taken place, because there once was a time when there were no gizzards, and had not some ancient progenitor of birds done all this, there would now be no gizzards.

Origin of Horns, Hair and Feathers.

Whether it was previous to the gizzard stage of evolution that the bird evolved its spurs and feathers, we know not, but that it has done so, and for a purpose, is proven by Mr. Darwin.

For instance, in the case of the rooster, Mr. Darwin says, that the male bird has evolved his pretty feathers to charm the hen, and his weapons—spurs—to whip other roosters from the dung-hill. Mr. Darwin does not say "dung-hill," but "district." As horns, hair and feathers are homologious organs, and, as Mr. Darwin has not explained the particulars as to *how* they have been produced, neither has he accepted St. Hilaire's evidence, that "the scales of reptiles became the feathers of the bird," it will be necessary for us to again call upon Mr. Spencer to inform us how they have been produced.

In his "Biology," Mr. Spencer says:

"Suppose a small pit to be formed on the previously flat skin; the quantity of horny, hairy, feathery matter, produced in this hollow, will be greater than that produced on the level portion of the skin. Supposing such pit to be deepened until it becomes a small sac. If the exfoliation goes on, the result will be the thrusting forth of the harder matter. Suppose once more, that the sac, instead of remaining simple, has its bottom pushed up into its interior, like the *bottom of a beer-bottle.* Manifestly, the structure resulting, will be what we know as horn, hair and feather."

Gentlemen, if anything can be plainer or more reasonable than these suppositions, we are not aware of them. Because, in the first place, we have to get the pit only, then, should something get into it, or be born in it, this something, no doubt, will try to get out of this pit. Should it be unable to do so of itself, and something else like the "bottom of a beer-bottle" be produced underneath and thrusts it up, of course, this first something will be able to get out. But preacher Congo says: "Dar's one pit, dat all de beer-bottles wat eber had bottoms ter 'em, can't frust you out ob, en dat's de eberlas'n pit w'ich sinners don't natur'lly selec', but whar de fittest allus surwive."

We are sorry that Mr. Spencer has not informed us about how many ages it has taken Evolution, from the time it first commenced forming pits in the flat skin, to when it perfected feathers on the birds; also, whether or not these bottoms of beer-bottles came out all over their flat skins at the same time, for if they did, the birds, no doubt, must have thought they had caught the chicken-pox, and, like the fish, been much astonished, particularly upon finding the largest and strongest pustules,

coming out of their "flat surfaces." Because, from observing the tails of frogs and lizards, the birds knew, that of all surfaces, the flattest are on the ends of things. This is forcibly proved in the case of the horse, as the flattest parts of this animal are on a ridge above his neck, and on the end of his tail.

However, these beer-bottles did not commence thrusting up the red, yellow, and blue feathers until the love season, nor the horny-spurs, until the fighting season began, as Mr. Darwin has fully proven.

Notwithstanding some birds after evolving feathers are able to fly around, get their food, and keep out of the way of their enemies, still, there are some birds, which up to the present time, have not evolved sufficiently to do so. They have the flat surfaces on the ends of their wings, and have endeavored to exfoliate sufficiently to produce enough hard matter to be pushed up into feathers with which they might be able to fly, but have not, as yet, succeeded. This might be, because nature is out of beer-bottles still, she has compensated them by enabling them to be among those who are the most fitted to survive. So let us see how not-flying was evolved.

Why the Ostrich Cannot Fly.

Mr. Darwin tells us, that

"The ostrich, having lost the use of its wings from disuse, has evolved for the purpose of defending itself from its enemies, the power of kicking as effectually as many quadruped."

If this be the case, and the ostrich once flew, then, it has since degenerated, and the matter which heretofore produced the necessary feathers which enabled it to fly, has settled in its heels.

Mr. Spencer agrees with Mr. Darwin as to the fact, that the ostrich cannot fly, but differs with him as to the cause. He tells us, that

"The reason why the ostrich cannot fly is, because it would take such an enormous amount of food to enable this bird of the desert to force its huge body through the air."

Notwithstanding these gentlemen do not agree in regard to the not-flying of the ostrich, we can see how they may still both be right. Although Mr. Darwin asserts, that the ostrich once

had wings which enabled it to fly, and Mr. Spencer asserts, that it had not. Still, there is a way in which even this slight difference of opinion as to a fact, between these two positive natural philosophers can be reconciled. Simply by bringing in time and place. Thus:

At the time when Mr. Darwin evolved his ostrich, there was an abundance of food on its habitat, without its flying after it, consequently, by disuse, it lost the use of its wings, and commenced kicking the zebras. But when Mr. Spencer came to evolving his ostrich, the deserts had been evolved, therefore, his ostrich had to live on sand. It did not mind this, because, foreseeing such a probable emergency, it provided itself with a gizzard, whose cuticle could stand the buzzing of the grind-stones of a flour-mill. Yet, there is one thing to be considered. If the stability of its canal was not an ultimate fact, and Mr. Spencer says: "Variations should be regarded at ultimate facts," the ostrich could never have forced its internal relations along lines of least resistence, and thus evolved the kicking power in its heels. In either case, the proof of not-flying is all right, reasonable, and what "must have taken place."

We scarcely need call your attention to the not-flying of the ostrich according to our theory; but, on it, as there are only so many molecules of each kind in the universe; at the time when the ostrich ceased to fly, the ostrich-flying molecules had all been used up, and the ostrich-kicking molecules dropped in. And on the fundamental principles of nature and philosophy, this must be so, because, if there exists no brain molecules, there can be no thinking; so, if there were no kicking molecules, there can be no kicking; this cannot be controverted, because the molecules which form muscles, and enables the ostrich to kick, cannot possibly form feathers to enable it to fly.

How Natural Selection Causes Young Birds to Build the Same Kind of a Nest as their Parents.

Having learned how birds became possessed of gizzards, feathers and spurs, let us see what some of them do, and in what way they perform different kinds of mechanical work without instruction, or ever having even seen it done. Those who

do not read, and keep up with the late discoveries made by natural philosophers, or, as Mr. Darwin puts it, "Have not attended to the recent progress of natural history," imagine that the actions of birds are performed from instinct.

All the great naturalists of the past, Cuvier, Buffon, De Maillet and others, have thought the same. Even the poets have fallen into the error. Milton, while engaged in the useful occupation of writing poetry, "Lost Paradise," and in his efforts to "Regain" it, nearly put out his poetic fire, tells us, that to Adam and Eve,

> "Great thoughts, great feelings came to them,
> Like *instincts*, unawares."

The question as to what constitutes instinct, has troubled us philosophers no little. Mr. Wallace, who discovered the law of Natural Selection before Mr. Darwin, but did not let the world know of it in time to secure a comfortable corner in Westminster Abbey, says:

"I decline to accept the theory of instinct in any case where all other possible modes of explanation have not been exhausted. If instinct means anything, it means the capacity to perform some complex act without teaching or experience. It implies innate ideas of a very definite kind, and if established, would overthrow Mr. Mill's sensationalism, and all the modern philosophy of experience."

As about the only mechanical work birds perform is to build a nest, and some of them do not even do this, therefore, Mr. Wallace says:

"Birds do not build nests by instinct but by *memory*. The young birds before they leave the nest, have ample time and opportunities of observing its form, its size, its proportions, the materials out of which it is constructed, and the manner in which these materials are arranged."

Mr. Darwin says:

"I have nothing to do with the origin of the mental powers, any more than I have with life itself. It can be clearly shown that the most wonderful instincts of the hive bees and among many ants, could not possibly have been *acquired by habit*. A little dose of *reason or judgment*, as Pierre Huber expresses it, often comes into play." * * * "The very essence of an instinct is, that it is followed independently of reason."

Now, this is much more reasonable than instinct. Take the case of the birds. When the young birds are looking around to see what sort of a place they are in, and finding, for instance, that they are up in a tree, and in something growing on the tree, they will note this down; but after a while, when they come to examine a little further into the matter, and are capable of using a little dose of Pierre Huber's "reason or judgment," they find that they were mistaken; that the nest was built there, so the "action of their minds foreseeing the future" when they too, will have to build a nest, they "observe its form, its size, and the materials out of which it is constructed;" all of which they impress upon their memories. If you take the trouble of observing birds, particularly the crow, you will find that they possess a wonderful capacity for storing away facts—and corn. Thus, after the young birds leave the nest and find themselves with nothing to do but get something to eat, and think about the homestead in the spring, when the courting season comes round; it will be then, when

> Great thoughts, great feelings will come to them,
> Like to lovers, unawares.

Mr. Wallace is sustained, on the question of memory, by Mr. Darwin, when showing us

How the Cuckoo came to lay its Eggs in the Nests of Other Birds.

We have already stated, that some birds do not build their own nests. These are either too lazy, or are not mechanical birds. The cuckoo is one of these, and the Natural Selection reason why they do not build their own nests is, that while in the egg, they have "ample time and opportunities of observing" that they have been laid in the nest of some other bird, so they store away this fact. There are many other facts which they afterwards store away; and we shall show you where a very large dose of Pierre Huber's reason or judgment comes in; where the moral actions get to work; where charity for the cold and the hungry is dispensed; the consideration for the feelings of others, and, in what way the looking out for the "A Number-one" sentiment has been evolved. You will then clearly understand,

that the fundamental essence of the theory of the "Survival of the Fittest," is, that in nature,

The hellish rule of "Number-one,"
Rules everything beneath the sun;
Where Nature, in her perfect way,
Lets those survive, who most do slay.

Where warfare, carnage, ravin, strife,
Make up the actions of each life;
Where bloody, brutal murder's done,
That in the end, a good may come.

Where tearing fang and crushing jaw;
Where thrusting horn, and seizing claw;
Where teeth and tallons formed to tear
The quivering flesh, and also where

The oozing blood and trembling limb,
In agonies to others bring
The boon of life, by causing death;
Where panting hearts and gasping breath;

Where writhing forms and cries of pain
Are offerings to this Hecate's reign,
To satisfy whose hellish greed,
Whole hecatombs of life must bleed.

But, as perfection is her aim,
She reached it, when she fashioned Cain,
To set a type of that which she,
Has been from all Eternity.

The only information we possess of the evolution of the cuckoo, and of its habits, are those furnished us by Mr. Darwin, who says, that

"The European cuckoo lays its eggs in other birds nests. The American cuckoo builds its own nest. Now, let us suppose that the ancient progenitor of our European cuckoo had the habits of the American cuckoo; but that she occasionally laid an egg in another bird's nest. If the old bird *profited* by this occasional habit through being able to migrate earlier; or, if the young were made more vigorous by *advantage having been taken*

of the mistaken maternal instincts of other birds, both would gain by the habit."

Before finishing the quotation, we wish to observe, that, as Mr. Darwin gives us this cuckoo phenomenon in order to prove how Natural Selection has produced these habits, it also shows us how it enabled the old cuckoo to find out, that by "laying an egg occasionally in another bird's nest," she could not only migrate earlier, but could stay at home in order to find out, before she did it again, whether or not her baby would become more vigorous, if brought up by a wet-nurse. And on finding, during her absence, of course, that her baby did much better with strangers than if she had performed her maternal duties herself, she told the old rooster cuckoo, "No more raising babies by me, old man." Here is the rest of the quotation:

"The young cuckoo soon *after* birth, has the instinct, the strength and properly constructed back for ejecting its foster-brothers from the nest, which then perish from cold and hunger; thus a *beneficial* arrangement is brought about, in order that the young cuckoo may get sufficient food, and that its foster-brothers may perish *before they have acquired much feeling*.'"

Oh, the wonderful workings of these very simple laws of nature! [The italics are ours.]

Leaving aside Natural Selection, we do not know what better proof one can desire of the beneficient designs of nature; nor in what way she can crook and delight herself more than she has done, by bringing about this "beneficial arrangement" for the only party to be benefitted. If she takes more interest in the welfare of cuckoos than she does in that of other birds, then, when she is in a crooking mood, we do not see why she should not crook the backs of young cuckoos, so as to enable them to commit murder. Still, she manifests some feelings of humanity, for she crooks their backs sufficiently, in order that they may be able to commit the deed "before" their victims have "acquired much feeling." And, as in her Natural Selection performances, she "develops organs to benefit the possessor only, acting solely for the good of each;" in this case, she has acted for the good of each cuckoo. Also, with her sense of justice and love of fair play, has taken care not to develop any organs of offense or defense in the victims.

We think that Mr. Darwin would have done better by nature and Natural Selection, and proved their acts much more satisfactorily, had he not ift, supposed, and said, "instinct." He had better followed Mr. Wallace, and said. "memory," also, given both the old and young cuckoos a larger dose of Pierre Huber's reason or judgment; because, the whole transaction clearly shows reasoning; judging of cause from effect, and the adapting of the reasoning faculties to special cases which result in special actions being instituted. We agree with Mr. Wallace, and have no doubt, that the young cuckoos *reason* the matter out and arrive at the correct conclusion. They know, that, as there are two families growing up in the same nest, there is not going to be sufficient food for all, so there must come a struggle for life, at least, the eldest rooster cuckoo knows this, and, no doubt, says: "Look here, fellows! let's take '*advantage*' of these other chaps. When the old foster-mother has gone off to market, let's hump these straight-back fellows out of the nest. This will not only be a '*beneficial arrangement*' for us, but will be obeying the laws of nature and natural selection, which are, for the strong to overcome the weak in their battle for life. Everything in nature, even those two-legged animals, look out for 'number one.' But in order not to shock the namby-pamby feelings of those sentimental doves, let's do it 'before they have acquired much feeling.'"

Prof. Jubal Takes Mr. Darwin to Task.

We are perfectly satisfied with this proof as to the origin of the habits of the old and young cuckoos, but when, for the purpose of making it stronger, Mr. Darwin undertakes to say, that "the young cuckoos get their properly constructed backs and instinct *after* birth to hump their foster-brothers out of the nest," we are not going to submit without a protest. We are willing, nay, desirous, to go as far and make as many sacrifices as any philosopher for the sake of a theory. We are willing to affirm, deny, be illogical, unreasonable; and, for the sake of the "Survival of the Fittest," we would even strain a point, but we are not going to admit that. We are not going to allow the theory of Evolution to be shattered by Mr. Darwin imagining

something coming along, humping backs and injecting instincts into cuckoos "after" they are born.

Mr. Darwin well knows, that the whole fabric of our theory of Evolution rests upon the foundation, that things which now are, once were not; that like everything else, hump-backs and instincts have been evolved, modified, and acquired. Mr. Darwin also knows, that we could not have been as sociable and comfortable, as we often have been when eating our dinner and talking philosophy over our punch, had not some ancient progenitor of ours "evolved and acquired," as he says, "hunger, thirst, language, and developed social habits." Were this not the case, what would become of our Hereditary, Rudimentary and Reversion hypotheses? Where would be our invisible ink; our extra toes ready to leap; our latent stripes and our monstrosities," if every generation has to evolve, or acquire them "*after* birth?" Besides this, Mr. Darwin is taking the very life out of these hypotheses; destroying the very consequences which flow from their principles, by making, not only cuckoos, but men responsible for their actions; also, denying his own statements; "that the moral and immoral senses or instincts have been acquired and transmitted to offspring."

In his "Descent of Man," Mr. Darwin says:

"The essence of an instinct is, that it is followed independent of reason. There is no inherent improbability that virtuous and bad tendencies are inherited. We have heard of cases in which a desire to steal and lie appear to run in families of the upper ranks; and as stealing is so rare a crime in the wealthy classes, we can hardly account by accidental coincidence for the tendency occurring in two or three members of the same family. If bad tendencies are transmitted, it is probable that good ones are likewise transmitted. Excepting through the principle of transmission of *moral* tendencies, we cannot understand the difference which exist in this respect between the various races of mankind."

In support of this, Mr. Darwin quotes, as he calls him, "Our great philosopher," Mr. Spencer, who says:

"The experiences through all past generations of the human race, have been producing corresponding modifications, which, by continued transmission and accumulation, have *become* in us certain faculties of moral intuition."

Therefore, if "instincts are followed independent of reason;" and if, as Mr. Darwin further says, "All creatures are compelled to follow the law of their nature;" that "organs, habits, good and bad actions, have been acquired and hereditarily transmitted to descendants," then, had not some ancient cuckoo acquired the instinct of humping, our European cuckoos, when young, would not now hump. Had not some ancient progenitor of the "upper ranks," stolen something, and then lied about it, we should now have no thieves nor liars in the members of these families," for Mr. Darwin gives us the rarity of these crimes in the wealthy classes as a proof that these qualities have been transmitted. Therefore, as we are compelled to obey the law of our nature, we are not responsible for our actions, and there is no merit in the few who practice virtue, nor demerit in the many who practice vice.

Mr. Darwin has fully proven, that is, to our satisfaction, that there was a time during the evolution of man, when there existed no such faculties as those of moral or immoral intuition; that these have been *acquired*. For in his "Descent of Man," he says:

"As man advances from a state of barbarism, he becomes more virtuous, and by the *transmission* of this increasing virtue, looking to future generations, virtuous habits will grow stronger. Becoming fixed by inheritence, the struggle between our higher and lower impulses will be less severe, and *virtue will be triumphant.*"

We have no desire to raise objections to the theory of Evolution, or the proofs which are brought to sustain it, nor would we attempt to do so, had Mr. Darwin and Mr. Spencer accounted, or attempted even to account for, why evolution should *first* have evolved evil faculties and habits in mankind. For, if the existence of good and evil faculties is to be ascribed to evolution, which Mr. Spencer and Mr. Darwin say is the "Universal Law of Nature," then these gentlemen should have shown us how this same agent, this law, has produced both vice and virtue. No power or law which produces evil can possibly be the agent which produces good, neither can it change its essence, or it would cease to be what it is. Besides, no power, no agent, can do that which is not within the law of its being. One cannot

give that which it has not to give. One cannot do that which is beyond its nature.

Time would be no factor in enabling this agent, say, Evolution, to do that which it could not always have done. Evolution is not an intelligent power. It could not have chosen to first evolve evil, and then change its mind and resolve to evolve good. If evolution has been productive, or the cause, if you choose, of all past evil, then, there must exist some other agent more powerful than evolution, which is able to undo what evolution has done, in order to bring about such changed conditions of mankind, that "virtue will be triumphant."

If, as Mr. Darwin says, that "evolution never takes a sudden leap, but advances by slow but sure steps," she cannot be advancing, if, at the same time, she evolves steps or conditions which retard that advance, however slow and sure that advance may be. For, if she has first evolved evil in our ancient progenitors, and afterwards allows that evil to suddenly leap into life in some future descendent to be again transmitted, she is not advancing, she is, so far, involving; getting back thousands of generations whence she started.

However, should Mr. Darwin be correct, and a time will come when Evolution will so change the nature of mankind, that "virtue will be triumphant," we shall be pleased, but at the same time shall feel a profound grief, that our molecules had not postponed their work of aggregation, until that time arrived.

Origin of Singing Voices in Birds.

Young gentlemen, as you have not yet learned how birds became possessed of their melodious voices—we do not mean the goose, crow, nor the screech owl, but the songsters of the grove,—we will ask Mr. Darwin and Prof. Haeckel to tell you. Mr. Darwin says:

"The beautiful voices of singing birds have originated in this way: The male birds when contending for the females, assemble around and sing, carrying on a musical contest, and then the females choose the singers who best please them for mates."

While reading this proof, we observed a slight oversight on the part of Mr. Darwin. He says: "The voices of singing birds have originated in this way," and there stops; not originating

at all, yet, "the males assemble around and sing." He then goes on with the proof, by saying, that "they carry on a musical contest;" still, this oversight does not affect the proof of the origin, because, the real natural selection takes place, all the same, as the "females choose the singers who best please them for mates." Under this condition of affairs, it does not follow that the female chooser gets the best singer, as the chances of any particular male singer being chosen, does not depend upon the quality of his musical composition nor on its execution, but upon the musical education of the chooser.

Prof. Haeckel does better than Mr. Darwin. He gets down to the very root of the origin. Knowing that no bird can sing without a larynx, Prof. Haeckel says:

"Birds are by naturalists systematized by the number of feathers in their tails. Singing birds have, *without exception*, twelve feathers in their tails, corresponding to the number of notes in the gamut of music. The number of tail feathers develop the larynx."

This is a singular ornithological fact, a singular thing, that Natural Selection should, out of the great number of feathers which constitute tails, have caused the male birds, who sing, to select exactly the same number of feathers that man has selected of notes which constitutes the gamut in music; and still more singular is it, that it requires exactly twelve feathers to develop a larynx. We are thus indebted to Prof. Haeckel for this discovery of the real origin of the singing voices in birds.

The larynx, gentlemen, is the organ of voice. It is a cartilaginous cavity which connects with, and is on top of the trachea, forming a protuberance which is vulgarly called "Adam's apple." Therefore, as our anthropomorphous ape progenitors had tails; and as the immediate link which connects us with them is lost, we do not know, whether or not, at the time they developed their larynx, they had feathers on their tails; but mankind, so far as is known, never had a tail, but has always had a voice. Therefore, Adam must have had a larynx, or he could not have put the blame on poor Eve regarding the apple business. Besides, it proves that "Boston Common" was the Garden of Eden; because, when the Lord called, and said, "Adam! where be you?" Adam answered and said, "here I be;" and the

Lord said, "Oh! you be, be you?" The devil also must have had a larynx; but, so far as he is concerned, it may be because he had a tail.

Whether or not the birds of Paradise had twelve feathers in their tails, we know not; but we now know that it requires exactly twelve feathers in a tail to develop a larynx in a bird; because Prof. Haeckel says, "the rule is without exception." But according to the maxim, that "there is no rule without an exception," there must be some mistake about this, for we once had a canary, a screaming singer, which never had but one feather in his tail from the time he was born, yet it may be, that the maxim was not intended to apply to cases of this kind; because we can account for this peculiarity in our canary by the law of Reversion, that he leaped back to some ancient progenitor who had developed a larynx with but *one* tail feather.

How the Female Grasshopper Always gets the best Fiddler for a Husband.

In referring to what Mr. Darwin states about the origin of voices in singing birds, Prof. Haeckel says:

"A similar musical contest takes place among crickets and grasshoppers. The male cricket has evolved on its belly, two instrument-like drums, which the ancient Greeks thought beautiful music. Male grasshoppers, partly by using their hind-legs like the bow of a violin against their wing covering, bring out tones which are, indeed, not melodious to us, but which please the female grasshopper so much, that they *always choose* the male who *fiddles the best.*"

In the case of the birds, we have said, that the female bird might not choose the best singer; this depending on her musical education, but the female grasshopper never makes a mistake in this respect, as she "always chooses the male grasshopper who fiddles the best." Now, how this is going to be done, you may think is a difficulty, for the reason that, in nature, there can be but one *best* thing of a kind; so, upon this principle, as there cannot be two best fiddlers at the same time in the same place, you may think that there can be but one marriage in a season among the grasshoppers. But let us see if we cannot get over this difficulty without calling in question the Professor's veracity.

As nothing can happen except at some time and in some place, in order to overcome the difficulty, we must take into consideration the fact, that at some time—during the courting season, in some place, the male grasshoppers do assemble round the females and go to fiddling. After giving sufficient evidence of their skill to enable the first chooser to judge, the best fiddler is then and there chosen, and, like the strongest Roman did with the female Sabin, captures her and carries her off. Then, the other fiddlers, after resining up their hind-legs, go to fiddling again, when the next choosing female gets the best fiddler who is then there. So in this way, each female grasshopper can "always choose the best fiddler," until it comes down to the last male hopper, when the last female has to take him, fiddling or no fiddling, or stay a hopper-maiden for the season.

How Organs for Offense and Defense came to be Evolved in Different Parts of Organisms.

We have already shown you, gentlemen, how Mr. Spencer has produced horns, hair, and feathers from pits formed on flat surfaces; but how these forms came to be of such different sizes, horns, etc., and in such different parts of organisms, and the feathers of such different colors, we must ask Mr. Darwin to explain. He says:

"When the males and females of any animal, having the same general habits of life, but differing in structure, color, or ornament, such difference has been *caused* by Natural Selection, that is, by individual males having in successive generations some slight advantage over other males in weapons, means of defense, of attack or charms. Thus the turkey-cock, the pheasant, the peacock, etc., etc., all get their natural weapons for attack, or defense, and their beauty to assist in love."

We must not think that Mr. Darwin has not clearly shown us, when and where these organs were produced for these purposes, but to convince ourselves that Mr. Darwin is correct, we must remember what Mr. Wallace has told us about the "action of the mind foreseeing the future and preparing for it," as then, we can understand how these organs were produced. Thus, when organisms evolved their weapons for the purpose of com-

mitting murder, most birds thought the best place to evolve them would be in the beak, but the ostrich and rooster, like the horse, concluded that such weapons would be more effective at the other end—in their heels. The lion and bear selected the jaw; while the scorpion settled on the tail, because the action of his mind foresaw, that the time would come when his descendents would be surrounded by fire, and sooner than they should be burned to death, he evolved a means by which they could commit suicide by stinging themselves to death. Other organisms formed their pits on other flat surfaces, and, like "bottoms of beer-bottles," thrust up horns. So, like all living things in this world which have the power to choose, the ox chose for his pit, the flat surface on the top of his head; but the elephant, wiser than he, dug his pit within a pit, and thrust his weapons out of his mouth. By this time, all the flat surfaces having been monopolized, and as every creature evolves some kind of means for offense and defense, the skunk was compelled to evolve in his pit a mephitic odor, with which to defend himself, and offend his enemies. So, if we look at Mr. Darwin's proof from the proper standpoint, we can see that he is correct. To judge correctly of anything in this world, depends upon how we look at it. Supposing, of course, that we possess the right kind of brains and education to use them. Look at the poet! The uneducated cannot drink in the ideal spasms of the poet's soul, nor comprehend the probabilities of a theory. To such persons Mr. Darwin says:

"It will appear monstrous, that a monkey, an elephant, a humming-bird, a snake, a frog and a fish, etc., could all have sprung from the same parents."

How Preacher Congo made Love in the Clover-Patch.

We know, gentlemen, that Mr. Darwin is correct on the love question, not only from our own experienee, but also from that of preacher Congo.

One day we were reading to preacher Congo the proofs presented by Mr. Darwin, of how the birds evolved their pretty feathers and singing voices to charm the female and conquer in love. While Congo did not believe a word about the horns

and spurs, nor about Prof. Haeckel's drums and fiddles, he did believe the love part of the proof, and said :

"Dar's no doubt 'bout dat, Fessor Jubal, 'kaze we's bin dar ourse'f, mor'n forty year' ago, but we didn't hab eny fedders on uz, ner much er anyting else, w'en we made lub en went ter charmin', ner we didn't hab eny larynx needer, but we got a frog en our froat w'en we started in ter talk lub en charm de gal.

"Now, Jubal, hit ez a ve'y cur'ous en won'erfull ting, how natur' cum ter 'volve our brains, en de way 'Fessor Clifford sez she did, by fus' form'n 'em outer de film wat form' on de belly er de jelly fish. But, sence we's got deze brains, dey neber fergits enyting w'en de mem'ry gits ter work. Dey's like de back er de do' en a piece er chalk. Dey's de day-book er life. You jes drap down on de leaf wat happ'ns ebery day, en let's hit go, 'kaze you kno's you kin 'fer ter hit w'en you wants ter. Fer ins'ens, wedder you paid dem two shill'n, er lied 'bout dem melons ; en w'en you wuz 'bout nineteen, en b'leev'd dat dem tings en de yaller bonnets wat humped deyse'fs like de cuckoo; sed "No," w'en dey meen'd Yes, en "Go way ! watchye take me fer ? " wuz angels. En you kin 'member w'en you scwatch'd down on de leaf, de day, de ve'y day er de weddin', en 'bout free weeks atter de hun'moon, dat dey wuzn't de angels you tuck 'em fer free weeks befo'.

"You see, Jubal, dat mem'ry-book ez sech a cur'ous book, dat you hab ter scwatch tings down, anyhow. You's 'bleeg' ter 'member de scrape you got yourse'f en et dat time, 'sides de miz'able time you's had eber sence wid dat angel. De sweet songs she' sing at fus, ter her 'dear duck,' en, den, in free weeks atter, yell et you, wid a concert-pitch larynx, ter 'git up, you ole goose, en lite de fire.' Den's de time, Jubal, aldo' not in a ve'y stilly night, w'en fon' mem'ry, like de dreems ob marble-halls, bring back de happy days wat isn't round you jes' den, 'less de angel mout happ'n ter be gwan ter de neighbors er de camp-meet'n. But, Jubal, speek'n er lub, we 'members ve'y well how we got en de b'ar-pen.

"Hit's mor'n forty year' ago, long 'fo' we eber 'spect' ter be a preecher er de Word. One day we seed S'manthy outen de clober-patch gitten' flowers fer de Misses ; en aldo' we hadn't

none er Mr. Darwin's nice fedders on uz, we 'sembled roun' en went inter de charmin' bizness, all de same, 'kaze de par'n' season had 'rribed. So we jes' 'volved ourse'f roun' dat way bidout eny obv'ous reason, er lettin' on dat we seed de gal. We didn't kno' w'at kinder 'squse ter make ter git 'longside her. Dar wuz no uze 'tendin' we'd eny bizness en der clober-patch, 'kaze we kno'd dat she kno'd dat too; but we wuz boun' ter hab a har'n'. So we makes b'leeve dat dar wuz a snake en de clober-patch, en we wuz a chase'n he. So, wen we works ourse'f roun' purty cloze ter de gal, we looks up quick, en 'sclaims, Bress de Lor', S'manthy, how you scar' us! We wuz chase'n de black-snake en mos' run ober you. She sed: 'We seed you, en we tinks to ourse'f, w'at dat fool niggah doo'n on. He mus' be gwine kinder crazy like.' Dat kinder tuck de stiff'nin' outer uz; but we limber' up; shuck ourse'f, like de hoss atter he bin roll'n' en de san', en sed, we's sprize' ter see you, she sed, 'You?' we sed, et ez radder waum, she sed 'Waum?' we sed, en gwine ter rain, she sed 'Rain?' we sed, dat's good fer crap, she sed 'Crap?' we sed, massa git heep cotton dis yeer, she sed 'Yeer?' we sed, en plenty wool, she sed 'Wool?' we sed, dat good fer niggah, she sed 'Niggah?'

"So we foun' dat de gal warn't gwineter hab nuff'n ter do wid uz, so we tinks we poo's a leetle honey ober her, en we sez, S'manthy! we isn't bin ve'y perlite, 'kaze we's dun all de talk'n, en you isn't sed nuff'n but, 'you, jes, crap, you, wool, niggah.'

"Den we tinks we 'peals ter de 'mag'nation en cum de 'Lake er Como' dodge on her. So we spre'd ourse'f like de turkey-cock; trowed out our lef' pedal 'stremity; ell'wated de fus' digit ob our rite prehenso, en pint'n ter a black-bird sitt'n on de fence, jes' en de sof'es cadence er mell'flus tones, like de harm'ny er de spheres, es dey waf' darsel's by gentle breezes fum 'olion grobes; en wile de sof' en melt'n glances ob internal fires er eager lub gleeme' fum out de winders ob our ebony-soul 'bove the ivory-box b'low, fum whar dar issue' forf' de burn'n words ob pent-up torrents ob consum'n lub, we open'd on her, en in de angu'sh ob a doubtful hope, we sed: S'manthy! But jes den we got dat frog in our froat. We wuz gwinter say, S'manthy! harken ter de wail er lub: but we wuz 'bleeg' ter cough, a'hem!! en sed, Barkin' et de tail dat's stub.

"But we wuz boun' ter git troo wid de job. Dar's no use, Jubal, gib'n up atter you start in. So we sed agin, S'manthy! duz you h'ar uz? We's a speek'n ter you. We's dress'n on you. We's gwinter 'spress de agony. We's gwinter call down Cupid ter pierce de buzzum er de Wenus er de clober-patch. Duz you h'ar uz? Open yo' yeers dat de strains er lub mout enter in. Den we poo' de Como-lake ober her dus:

Oh, dat we cood mount on de 'ternal pinions er fancy,
En w'ile sail'n troo de et'erial reg'ons er tho'ght,
Gadder one flower fum de gyrden er 'mag'nation,
Den, true as our lub, en pure ez dy soul,
We'd 'cite en dy buzzum a t'rob, ez gentle
Es dat w'ich shuck de drops fum de Peri's lips,
We'n down she stooped, en bor' dis lub'n sinner's pra'r ter heben.

"Well, Jubal, dat tuck our bref 'way. But w'atch you tink? Dat wench jes' stood it, en neber sed a word; so, we tinks ter ourse'f, we's got her shu', en w'en we gits our bref back, jes' en de sweet's, sof'es dulcet, ariel-whisper'ns er de undulat'n zefer, we sed, S'manthy, did you h'ar uz? Did lubs iron pierce? But den she riz on uz. You kno' w'at dey call de *flux de bouche*, ze grand cataract er de mouf iz? Well, ef we did'nt git de loquashus Niagara under de Falls den, we neber did; but we stud de shower. You kno' Jubal, dat w'en all flex'ble bodies ez fo'ced beyon' de tenshun er dar molec'lar prop'ties, dey snap.; so S'manthy snapp'd et uz. Yah! Yah! Jubal, we shall neber fergit dis; neber ferget de way she sed:

'Git out, you common fiel'-han' niggah! [She wuz de house-sarvant.] Git out! W'atch you bin git'n outer yer? W'atch you buze'n uz fer? Whar you eber see me Peri? W'eng you eber see me en de gyrden stoop en shake de draps offen de lips er eny sinner? W'eng you eber see me sail'n' inter de 'pinions er eny body's fancy? I tells you wat, I'ze gwinter tell de massa, dat you tried ter bor' my lips en 'cite in my buzzam a t'rob. Git out de clober-patch, you ornery niggah! Sarve you rite ef massa clar' you off ter be free niggah; den, you hab ter take k'ar youse'f.'

"Laws-a-massy, Jubal, we shell neber fergit dat. We shell neber fergit how dat limber' uz agin. We felt a sorter inwol-we'n molec'lar complex'ty gwine on. Our inner 'lations wern't in 'accord wid our envir'ment jes' den. De nat'ral s'lection couldn't select; 'twar'nt our par'n season; like 'Fessor Haeckel sez: We fiddled de bes', 'kaze we wuz de only fiddler dar, but our social habits hadn't 'volved 'nuff, en we felt like dat fish you wuz tell'n 'bout, w'at tuck walks on de lan', so we gasp' fer a'r, en ef dar'd bin a tree 'roun', we'd bin like one er our ancient p'ogen'tors, arbor'al en our habit, en clum 'dat tree shu'.

But we didn't gib her up. We still persist'd wid force; we kno'd we'd surwive; we kno'd we wuz de fittest fer dat gal on de plantashun, so we reck'nd we'd gib time a chance, en cood 'ford ter wait a ge'logical period er two.

You can't hurry natur', she takes her time; she mout do tings a leetle crooked sumtimes; but she fotches 'em out all strate in de end. W'en she's transmut'n a wuf'less wench inter a wusser, w'at sign'fy a few million year? Why, 'cord'n ter g'ology, et tuck natur' 375 tousand year ter transmute de coal-beds er Nova Scotia outer de plants, en ober 30 tousand year ter chap 'way de lan' fum Queenstown ter de N'agara Falls. De worl' isn't but six tousand year ole, but dat makes no diff'ence. Hit tuck natur' dat long ter do dem two jobs. So we kno'd we'd hab ter wait and gib de gal time. Dar's a good deal er natur' in de gals, en you can't hurry 'em, 'tickerly, 'gin dar wills.

"But we didn't hab ter wait a ge'logical period, 'kaze 'twarnt' long 'fo' de missus tuck 'nudder gal in de house, en sen' S'manthy outen de cotten-fiel'. Den lub's mol'cules 'gin ter ag'gate; den de co-relation tuck a han', en it wern't long 'fo' we 'volved ourse'fs inter a highly ox'dated compoun'. But we neber year'd de las' er dat Peri bizness. En fer deze many long year' we's of'en pra'd, dat sum Peri wud stoop down, en bor' dis sinner's pra'r ter heben fer a leetle less er de ebberlas'n strains er de moosic er de jaw.

"S'manthy's purty ole' now, en hab weaken'd a mite on sum tings; but she's ez strong ez eber, en we don't kno' but a leetle mite mo' powerful on dat part er domestic dooty. Talk 'bout yawn'n fum dewy-eve, in troo de silent watches er de night,

Fesser Jubal! Why, we's yawned fum de sotten ter de rise'n er de sun, en our watches isn't bin er de silent kine', needer. But bress de Lor' fer he goodness! we kin stan' it yit; only, w'en we tells 'bout et, de salt-rash breaks out all ober uz. If we wuz you, Fesser Jubal, we wud 'vise doze young genl'men er you'n ter take de warn'n er prudence fum 'sperience, en neber git darse'fs inter any place, ner eny fix, dat dey can't back out ob. We shood tell 'em ter 'member de Kang'roo, dat atter he got up de hill, how many tousand years hit tuck 'em ter 'volve de back'n down faculty. We should tell 'em ter 'member de steel-trap, en de b'ar-pen; ter tink er Fourf er July en Liberty; but 'bove all tings, ter tink er de vine en de fig-tree, whar dey kin sleep en peace, en hab nobody 'roun' ter make 'em 'fraid. Tell 'em not ter risk de pot-lid hittin 'em; ter keep fum under de loquax-niagara; ter mend der own socks, en sew on der own buttons. En know'n w'at a pow'ful ting natur' ez, we shood comfort 'em a leetle, en tell 'em, dat ef, in der schloss'n' 'roun', dey shood slip up en git in de trap, dat de Lor' will hab marcy on 'em; kaze he'll kno' dey wuz tempted."

Young gentlemen, you may be sure that we sympathized with preacher Congo, and felt sorry for him, and, as he wiped, what he termed, the "salt-rash" from his bald-head, we understood the cause of his emotion. When one has experienced an effect, he can generally trace it to its cause, and in a case of this kind, enter fully into the feelings of others upon whom, from a like cause, the same effects appear to have been produced. The same sympathy and sorrow which we felt for Congo, we would have felt for that poor parrot, had we seen it. The same parrot of which we have already told you, that Baron Von Humboldt saw in South America. "The only lone, lorn, living thing that could speak the language of a lost tribe of men." Sooner than be that poor parrot all alone and lorn, we would rather bear the pelting of the loquax-storm; hear the rush and roar of lingua's rattling wind; lay awake in anxious hope that, 'ere the morning broke, the storm would lull; or find relief in drinking of the ideal nectar which, though sweet, inebriates the poet's soul, and in maudling lines pour out our gush in words like these:

Unhappy bird, a type thou art,
Of that dark shadow on our heart.
O, des'late one! thy fate's our own,
We're in the world, alone! alone!

No list'ning ear, no answer'ng voice,
No one to joy when we rejoice.
No one for whom to shed a tear,
No gladden'd hearts when we are near.

No loving heart to share our grief,
No friendly hand to bring relief,
No farewell blessings when we part,
No words, "God speed you," fill our heart.

No prayer for safety while we roam,
No shouts of welcome! welcome! home!
O, des'late ones, let's weep and moan,
We're in the world, alone! alone!

Gentlemen, had we been with the Baron in South America and seen that female parrot, we would have examined her teeth; seen if she was bald, or had wrinkles around her eyes, as, then, we could have judged about how old she might have been, and probably fixed the geological period in which she was born, thus approximating to what length of time might have elapsed since that tribe of men were lost, and in what stratum we might find their fossils. Still, should we find them, we should only learn about what period of the world's history that tribe of men had used up all their molecules and thus died out; leaving behind them, only one poor parrot, which, having a larynx, to inform the Baron, or anyone else who might ask her, about a once existing tribe of men, and in what language they used to express their thoughts.

Upon our theory, we can account for the extreme age of that parrot, and the natural reason why she had survived that lost tribe of men, simply, because that parrot had a greater number of molecules which belonged to her than had that tribe of men, and had not used all of them up at the time the Baron was there in South America. The truth of this philosophy, is borne out in history. Although at the present day some men live to a

great age, yet, in the past, they lived to a much greater age. Seth lived 950 years; Jared 962; Noah 950; and there were sufficient molecules which belonged to Methusalah, to keep him visibly existing for 969 years. Now, how did this come about? Prof. Huxley says: "A living organism is a molecular machine," and according to Mr. Spencer this machine was made by "Force," for he says: "Force made the molecules aggregate so as to form the universe, the world, and everything in and on it. The materials were there, it only wanted the necessary combination." Therefore, when Force, who being new in the business of forming organisms, first began assorting the molecules into sets, he aggregated too many of a kind in one set. He knew, of course, that there were but just so many molecules in the universe. If he did not, we philosophers could have told him. He also knew, that there were just so many organisms to be made before either the Judgment Day or Mr. Spencer's "Universal Dissolution" time came around, and that he could get no more under the present arrangement. So, finding that there would not be sufficient molecules with which to form the required number of objects, he commenced pinching a little here and a little there, till he pinched the ephemeron so closely that it hardly lives an hour, and cut the man down to about three score years and ten. This is both the philosophical and natural reason why man does not live so many years as he did in the past, and also, why some men live a greater number of years than other men.

End of Lecture Seven.

LECTURE VIII.

Origin of the Sentiment of Astonishment.

Young gentlemen, not to consume our time in contrasting our theory with that of others, if you will keep in your minds what you have learned from some philosophers, viz: That there was No-beginning of anything; that the germ of every organism-animal or plant, pre-existed, was pre-formed, whole and entire, in a sensible form, either from a beginning or from a no-begin, ning, and the conclusions which we have drawn from these principles. Also, keep in your minds the principles of our theory, viz: That when each form, each organism, comes into visible existence, it is simply because the time has arrived for its own peculiar molecules to aggregate; that it remains in visibility only so long as there are any of its molecules left to interpose and add to its already existing mass, this constituting physical life, and when these shall have all come *once*, fulfilled their mission, that then, the living thing shrinks back into invisibility. We say, if you will keep these principles in your minds, and apply them to what we shall say hereafter, it will save us the time and trouble of repeating them.

We have already pointed out to you, that some of our Evolution philosophers get things too far apart, that in their zeal for their theories, they often forget what they have already stated in regard to the necessity of giving nature sufficient time to do her work. Also, that when they come to accounting for the quick modifications and variations which take place in animals and plants in cross-breeding, that, on the time question, they can give our mother, Nature, 59 minutes and the 999th last divisible fraction of a second, on this sort of work, and can beat her every time. But before we enter upon Heredity, Transmission, Modification and Variation, at whose wonderful work you will, no doubt, be much astonished, we had better inform you how man became possessed of the sentiment of Astonishment, and by whom it has been transmitted.

Mr. Darwin says, that we have derived this sentiment from animals, and proves it in a case of the action of some dogs; this proof is so clear, that he thought it the only one necessary to adduce. He says:

"A party was out hunting a troop of baboons with a pack of dogs, and the monkeys took to the hills. Among them was a poor little young monkey who had got left behind. Seeing that, a big monkey left the troop and came down the hill to fetch the young monkey up. The dogs that were hunting them stopped, *too much astonished* to make an attack."

In this case, it seems to us, that it could not have been that this pack of dogs were afraid of one big monkey, but never before having experienced such a piece of audacity on the part of a monkey, their sensation of astonishment overcame every other, and in their amazement, they forgot their natural instincts. Yet it might be, that their sympathy and pity for the poor little monkey were excited. However, this is the proof Mr. Darwin gives us, that we derived the sentiment of astonishment from animals.

Hereditary Transmissions and Quick Modifications.

Mr. Darwin tells us, that:

"Nature requires a long time in which to do her work." * * * "Natural Selection acts exclusively in the accumulation and preservation of organs which are beneficial to each creature." * * * "The fundamental law of progress is Heredity; that the parent transmits its modifications to its descendants, not only its structure, but its habits, intelligence, feelings and sensations."

If you keep this in your minds, you will be able to follow us, and understand what Prof. Haeckel says upon hereditary transmissions; also what Mr. Wallace tells us, on quick modifications and variations.

The Professor says:

"We know that certain acquired qualities are more easily transmitted than others; more easily than the mutilations caused by accidents. These generally are not transmitted by inheritance; but sometimes they are. If the law were general, the descendants of men who have lost their arms or legs would be born without the corresponding arms or legs; yet here exceptions to the general rule sometimes occur, as a race of dogs

without tails has been produced by cutting off the tails of both sexes for several generations."

Then, the Professor gives us another case, in which man had nothing to do in the matter. He says:

"A few years ago, a case occurred on an estate near Jena, in which, by the careless slamming of a stable-door, the tail of a bull was wrenched off, and the calves of this bull, ever after, were born without tails."

He then gives us a case of the loss of organs on the other end, and says:

"There is a special race of oxen in Paragua, in South America, which are entirely without horns, descended from a single bull in 1770. This quality being found advantageous, a harmless race has been obtained, and almost entirely supplanted the hornless cattle of Paragua."

Next, the Professor gives us a case which occurred nearer home, in which both ends, middle, top, bottom, sides, internal and external organs, were exceptions to the general rule. He says:

"In 1791, Seth Wright, a farmer in Massachusetts, had a lamb born with surprising long body and very crooked and short legs. When it grew up, Seth Wright found it could not jump across a hedge into a neighbor's garden. It occurred to this farmer to transmit this quality to other sheep, and he produced a race of sheep with such long bodies and short crooked legs, none of which could leap across the hedges. They are, therefore, much liked and propagated in Massachusetts, in North America."

Gentlemen, this is strong evidence in sustaining Prof. Helmholtz, that "nature has taken many crooked," and in this case of the sheep, slab sided, "ways in her progress toward an extreme perfecting." We have given you these cases as proofs presented by one of the greatest Evolution philosophers now living, and the more of them we give, the more you will be astonished at the quantity and quality of such that can be presented of modifications, and of their transmission to offspring. Before we proceed to comment upon these proofs, we had better add Mr. Darwin's testimony. He tells us, in his chapter on "Inheritance:"

"With respect to the inheritance of structures, multilations by injuries, or altered by disease, many instances have been recorded of cats, dogs and horses, which have had their tails and legs amputated or injured, producing offspring with the same

parts illformed. Mr. Wetherell states, that the Sioux Indians make immense holes through the lobes of their ears, and tatoo themselves; and sometimes children are born among them with these marks. This was confirmed by the U. S. Government Indian Agent. Prof. Preyer informs, us, that in Bonn, Jewish children are born already circumcised, and are considered the special favorites of Jehovah. Dr. Proper Lucas speaks of many cases of inherited injuries. Thus we find, that defects of injuries or mutilations, are occasionally inherited. Defects are transmitted much oftener than is generally supposed. The wonder is, indeed, in *all cases*, is not that any character should be transmitted, but that the *power of inheritance should ever fail.*"

Some Consequences which might result from this Power of Inheritence.

Since having learned what characters and qualities of structure can, and might be transmitted to offspring; also made aware, that there is great danger, that nature, man, stable-doors, one-armed, one-legged, or one-eyed parents may, some of these days, cause these special cases to become more general, we must not, like those dogs, allow our sensation of astonishment to overcome us; neither should we hear of one-eyed, one-legged or one-armed babies being born; because, philosophically, the *potential* or possible is there; the heredity, or like producing like is there; the "wonder that the transmission should ever fail" is there; and nature having worked this out in the indians, jews, dogs, oxen and sheep, she might do the same thing in our families. Besides, should these special transmissions become too general, the girls will have nothing to do with some soldiers, nor be fooled by a glass-eye. They might risk a fellow with a hole in the lobe of his ears, or one who has tatooed an anchor on his arm, or one with six or seven fingers, or toes; but those who have but one leg to stump it to the opera, or one who has but one arm to put around them, will have to remain bachelors, and this will be hard on the poor fellows, because what there is of them will not live so long, for Mr. Darwin tells us, that "married men live longer than the unmarried." This is true, and in accordance with the natural law of motion; for married men have to hustle around outside, getting food for their families, and when at home, keeping themselves out of the way of

the house arrangements ; thus they have no time to think about their latter end. And as it is natural for every man to desire to die in peace, the married men put this off, hoping the day may come, when they will have sufficient peace of mind with which to die.

Now, without saying anything about anybody, or mentioning names, we, ourselves, have been looking for this necessary amount of peace, these many years ; and if, as yet, we have not found it, the law of compensation has been granted us, as the law of motion, having caused oscillation and friction of the molecules of several pieces of somebody's mind, have kept us alive, and enabled us to be now lecturing here before you.

If nature is inexorable, arbitrary, and tyrannical, she is just, for if she punishes us for our early rashness, she compensates us, by letting us live longer to suffer and endure the penalty.

As some modifications in structure, either accidental or intentional, can be effected so readily as Prof. Haeckel tells us they can be, should any of you young gentlemen get married, and in order to escape the noise and bustle of the world, should go home to enjoy those comforts which always reign at the family fireside, and should not wish your dog, the truest friend you have in the world, to come wagging his tall at you, why, all you need do is, to cut it off, you need not wait several generations for him to do what your ancient progenitors did, wear it off by friction. And should you find, that having flies to pester your bulls is an "advantage" to them, all you have to do is to go to Jena ; watch your opportunity ; carelessly slam a stable-door ; catch their tails, and wrench them off. The bulls will not care ; for when they find their tails gone, they will think that it is only one of those crooked, slamming, and one-ended ways which nature has taken towards their external and tailless perfecting. You can do the same in respect to their horns. What you need to do in this case is, to go to South America, and buy a bull, whose ancestor was not more ancient than 1770, who found that no-horns was an "advantage" to him. And notwithstanding all the trouble Natural Selection has had, spending millions of years in developing horns for the purpose of enabling him to defend himself, and fight the other bulls in the spring, he now

finds, that the absence of horns enables him to survive longer in his battle for life, than when he possessed them.

But in regard to weapons being developed as instruments for offense and defense, it appears, from what Prof. Haeckel tells us, that nature has made an exception to the rule, for he says:

"Nature has made an exception in the case of man. Instead of evolving structures to use as instruments for attack and defense, or to wage deadly combat for the possession of the female, man has evolved the power and ability in the ends of his two forward limbs to fashion weapons to accomplish the same object. Witness in the middle ages, the struggles to the death in tournaments and duels, which determined the choice of the bride? the *strongest* always carried home the Bride."

We do not know whether Prof. Haeckel means the strongest-limbed competitor, or the one who had fashioned the most effective weapon, but we do know what he means in the case of no-horned weapons becoming an "advantage" to the South American bulls in the same kind of a contest. We also know, that all living organisms have evolved some kind of organs as instruments for attack and defense, except some females, and for these purposes only; but, we never knew, before the Prof. informed us, that man evolved in the ends of his two forward limbs the ability to fashion a weapon with which to accomplish the same objects, particularly to "enable him to carry home the bride," for all the brides we have had, came right along, in fact, would have "carried" us, sooner than not got home.

Man had been on this earth ages before he evolved sufficient ability in the ends of his two forward limbs to pick a flint even, or fashion a bow and arrow; but, there is no doubt, what Mr. Wallace tells us is true, that "the action of his mind foreseeing the future," that a time would come, when his descendents would have to fight for their brides, "prepared for it." And, seeing further into the future than the "middle ages," that as his descendents would be able to get brides without fighting for them, they would then need to use only the ends of their two forward limbs in getting the means to feed, buy their back hair, and a rocking-chair for them, so, he prepared himself for this also.

But, never mind this. Let us see how you gentlemen may avail yourselves of the advantages which these quick modern

modifications give you. Should you not wish to go into no-horned or no-tailed cattle raising, but should desire to raise sheep on your farm; and should your fences not be sufficiently high to keep your sheep from jumping over on your neighbor's land, then, in order to save the cost of extra lumber, all you need do, that is, if your name is Seth Wright and you live in Massachusetts, is to look out for the first slab-sided, short, crooked-legged lamb that comes. Do not eat him; let him grow up; you will need but one, for, at first, old Seth had but one; then, you can raise a race of sheep, that will not only be unable to jump the fences, but will be "very much liked in Massachusetts in North America." Besides this, as the people there like this kind of mutton, you will find a good market for your sheep.

We have inquired into this matter, and find, that the Massachusetters have about given up the mackeral and gone to living on lanky, crooked-legged sheep. They have been fitting themselves for this kind of food ever since 1791, and have now so modified their olfactory organs, as to bring them in accord with the peculiar odor of crooked-legged rams. Besides, by swallowing Plymouth-rocks, they so have increased the cutical of their gizzards, that they are able to digest the toughness of this newly modified lamb.

So, that now, the people in Massachusetts, when they eat lamb, do not care how long he "be," how crooked he "be," nor how slab-sided he "be;" it "be" all the same to them, if he "be" a descendent of Seth Wright's archetypal lamb that first "be'd" in "1791 in Massachusetts in North America."

Alfred Wallace on Quick Modifications.

Let us see now what Mr. Wallace can do in the way of quick modifications. In his work on "Natural Selection," speaking of how changes of structure, modifications in size, form, color, instincts, etc., come about; also, the rapidity with which everything varies to gratify the wants, or pander to the passion and caprice of man. Mr. Wallace says:

"Changes which have taken Natural Selection untold ages to effect, man has effected in a few generations. Man has not only escaped natural selection himself, but he is actually able to

take away some of that power from nature which before his appearance she universally exercised. The time will come when man's selection shall have supplanted natural selection, and the earth will produce only cultivated plants and domestic animals."

Then, in speaking of what man has already effected, he says:

"For example, when fashion demands any particular change in the form or size or color of a flower, sufficient variation always occur in the right direction. When, as recently, ornamental leaves came in fashion, sufficient variation is found to meet the demand; the zoned-pelargoniums and varigated ivy; and it is discovered, that a host of our common shrubs have taken to vary in this direction, just when we *want* them to do so. Look at the dog! The poodle and the greyhound came from one original stock. Instincts, habits, intelligence, size, speed, form and color, have always varied so as to produce the very races which the *wants* or *fancies*, or the *passions* of men have led them to desire. Whether they wanted a bull-dog to torture another animal; a greyhound to catch a hare; a blood-hound to hunt down their oppressed fellow-creatures; or a pet for a women, [not larger than your morning muffin] the required variations have always appeared."

From these facts given us by Mr. Wallace, we can easily account for the many singular variations which have taken place in the past. We can now understand how there came to be winged-horses, from the fact, that the men of those ages taking a *fancy* to ride flying; also three-headed dogs, by these men *desiring*, and no doubt, demanding three barks at the same time from their dogs.

If, as Mr. Wallace insists, that "man is the only being that has the capacity to form ideal conceptions," the zoned-pelargonium and the ivy have the capacity to form real conceptions of what kind of a form, size or color "fashion demands;" also, the power to change their structure, form and color to meet it. Even a "common shrub" has sufficient capacity to conceive of these demands, and "has taken to vary in this direction." The same with the dogs; but then, dogs have sufficient capacity to conceive of space and time; to judge of the What, the Why, and the How. They know how far it is to the butcher's shop, and about what time of day the butcher may be out, or even busy. They know *what* they want, *why* they go to shop, and *how* to get that which they desire. If dogs are deficient in the

moral faculties, they possess the faculty of conceiving the "wants, fancies and passions of men." Thus, should a man have but a poodle on his farm, and should fancy he wants to hunt hares, this poodle perceiving the notion of his master, will modify and vary himself into a greyhound; or should a man have a plantation, and one of his negroes runs away, it will make no difference to the poodle, he will perceive that his master has a "passion to hunt down his oppressed fellow creature," and will vary himself into a blood-hound, so quickly, that he will catch the darkey before he gets into the swamps. Like Mr. Darwin, we exclaim, "Oh, the wonderful power and capacity of modification!"

As these changes are effected through the agency of man, you, gentlemen, may wish to know the *modus operandi* by which they are effected, that you may be enabled to modify, and thus gratify your fancies, wants and passions.

Well, supposing you should fancy to go hunting for hares, but have no greyhound, all you need do is to tie up your poodle; starve him long enough and you have your greyhound. Should you desire to get up a Spanish-circus, and have no bull-dog to torture your hornless or tailless bulls, then, take the food which you did not give to the poodle, or stuff him with your wife's morning-muffin pet, and you have your bull-dog; because it is from the nitrogen contained in animal food that produces force. Had the ortrich sufficient of this force, Mr. Spencer says, that it could fly; consequently, if you get sufficient force into the pet, he will be able to fly at the bulls.

Now that slavery is abolished, and John Brown has stopped marching, you will not need, therefore, will not desire a blood-hound; but should you, then, in the first place, get a dog, feed him on "bloody-shirts," and there is your blood-hound. But, in these latter days, it is not so easy to raise blood-hounds in this way, as "bloody-shirts" are getting scarce. Still, if you must and will have a blood-hound, then, just have "a want, a fancy, or a passion," and modification will fill the bill, or else, Mr. Wallace is not the Scottish Chief of Natural Selection.

Let us now examine Mr. Wallace's other proofs and see what advantages you may derive from the quick variations which take place in flowers. Supposing you should get married—which in

our love for our scholars, may the Lord forbid—and your wife should have a want, say for a varigated cauliflower, a single begonia, or a double interlaced pierre-hyacinth, all you need do is, to go out into your garden on Saturday night and desire. Then, communicate this desire to any common shrub, and before the next morning, that shrub will so modify and vary, that your wife can put it in her bonnet ready for church, and will ask you only for all the money she can get out of you, to give to the original, primordial, but now the latest double-reformed clerical hyacinth, in order that he may travel around, blooming, blossoming and causing a blush of shame to mantle the cheeks of every unreformed shrub, that does not vary, but which thinks it can save the souls of scrubs, better without a wife than with one.

Then, in regard to dress, suppose the fashion should change, and this with the women is, like the moon, ever varying. It is no sooner "full" than it commences to change, and so quickly, that you can never tell when one fashion goes out and another comes in. Should you not look out rather sharply, the bonnet you sent home on Saturday night will be out of fashion the next Monday morning. Still, your wife will make good use of it before then, and get out of it all there is in it; we mean the principle purposes for which it is constructed on the cob-web model. She will be up earlier than usual the next morning; have it on long before the church bells ring, while the looking-glass will be wearied out from its excessive labor of reflecting.

When this bonnet presents itself in church, varying in its effects upon such organisms which possess the faculty of critical observation, like an esthetic zoned-tantalizer, it will make all the women in the congregation so envious, that after the sermon on the "Vanity of worldly things" has been delivered; the revised hymn, "Rock of Fashion, let me hide myself in thee," has been sung; and the congregation dismissed with a notice, that on next Sunday, a collection will be taken up for the purpose of sending Mr. and Mrs. Howlatem on a mission to France, in order, that, with a few cans of pure gospel kerosene, they may light up the dark places in that benighted land; then, when your wife gets outside the church, her lady friends will kiss her

good-bye. But before the friends separate, some unenvious one of them will say:

"Ain't it a shame for Mrs. Chico to be spending so much money in titivating herself?" "Yes," says another, "and as homely too, as she is. Look at her poor husband, slaving and working down in that nasty old office! It's too bad, I wouldn't do it." "Well," says another dear friend. "I don't want to say anything, but some people can manage to get things easier than most people." "Do you know, my dears," chips in another —very dear friend, this time, "that I always thought it strange where poor Mr. Chico finds the money his wife spends on her dresses, and she hasn't a bit o'taste. Think of blue with her complexion; no style; nothing can look well on such a figure as she's got. She ain't distangay a bit. Oh, my goodness; gracious me! if she isn't coming back. To show her new things, I suppose. Just look at the airs!"

When Mrs. Chico returns, another, a gushing friend, who has not parted from her for nearly three minutes, rushes at her to the manifest danger to her ghost of a bonnet; kisses her and says: "Why, Mrs. Chico! we've just now been talking about you and your beautiful new bonnet. It's just too lovely for anything; and we've been admiring your superb, elegant, good taste in dress. Blue is so becoming to your complexion. Mrs. Gelous was just this minute saying, that 'she didn't know how you managed it,' but I told her, that it came natural to some people. The esthetic, beau-monde, distangay-ideal, appears to have been born in them. Now, I hadn't fallen in love with the new style a bit, till I saw it on you; but Mrs. Henvee said, "it was your figure.'"

"Thank you, my dears!" says Mrs. Chico; "but I think my dress is cut a little too full." "Not at all! No! not for you," says Mrs. Fullspit; "people who ain't tall, but rather stout, ought to have their dresses made full, and cut bias."

Mrs. Chico having accomplished the object of her return, says: "Well, my dears, I must be going." So the friends all kiss her again. She then goes home, talking to herself on the way, about the two faces some people have. Yet she tells her husband how jealous and envious all the ladies at church were. Mr. Chico mildly suggests, "that on the subject of dress, ladies

do not mean half what they say." Then Mrs. Chico wants to know if she is a fright; flounces up stairs and has a cry, while poor Mr. Chico goes out into the back yard and whistles, "Would I were a boy again."

Modifications and Variations According to the Jubal Theory.

We have said, that we should let you contrast all future proofs of the origin of things with our theory, but these proofs are so strong in its favor, that we desire to call your attention to them. In all the cases of modification and variation which we have given you, it has not taken, as Mr, Darwin says, "fourteen," or any number of "thousands of generations" to produce but a "slight variation." These proofs are conclusive, that, the muffin-pet, greyhound, poodle and blood-hound have not evolved, transmuted nor modified, through long lapse of ages, from the wolf.

How much more natural, philosophical, and in accordance with molecular physics it is on our theory. That, when the pets, poodles, greyhounds and bull-dogs first appeared on this earth, it was because their molecules had just then got here, and, so far, are still coming. But as there are only just so many of each kind of molecules in the universe, when they have all come, these varieties of the dog race will die out, and new ones, probably, come into visibility, because Prof. Draper, and all naturalists say, that "when species and varieties of species die out, they are clean gone forever."

Now, cast your minds back, and follow the accepted cosmogony of the world, from the primeval mist, the globes of molten liquid, the wrinkled crust, the descending rains, to when the earth became fitted for the abode of living things, and see, that when the proper time, season and conditions were such that different kinds of organisms could exist, how quickly their molecules came. Nothing which exists in potentiality can be ushered into actuality until its own peculiar molecules aggregate, and their special time comes. Think how long it has taken the molecules of the zoned-pelargoniums, muffin-pets, greyhounds, and particularly the Scotch terriers to catch the rats, to get on

the earth. The rat molecules were here ages before the terriers. Where were the slat-sided, short, crooked-legged sheep molecules before 1791? They must have been somewhere. They could not come from nothing. They simply existed in the invisible, and when the first lot came into visibility, they happened to drop on Seth Wright's farm in Massachusetts in 1791, and they have been coming ever since that time though in less numbers; for crooked-legged sheep are dying out, and the Massachusetters have gone back to mackeral. This is the true natural way in which to account for the origin of all new forms, etc., of organisms; also, for the extinction of species, races, and varieties.

We will now hear what Sir John Seabright, one of the most experienced pigeon breeders in England, has to say on quick modifications. He says:

"In three years I can produce on a pigeon, any given feather, but it requires six years to produce any desired head or beak."

Supposing some of you gentlemen should have a fancy and a desire, and these should take the form of some particular style or shape of feather for your pigeons; according to Sir John, you will have to wait three years before your desire can be gratified, but should your fancy and desire reach the form of a particular kind of head or beak, you will then have to curb your impetuosity, practice the virtue of patience, and wait six years for modifications to get its work done. While this is a long time to wait for a miserable, lousy old pigeon to get a new head and beak on him, yet, what does it signify? "A thousand million years is nothing to nature when she wants to transmute a worthless metal [or a pigeon] into a better."

Origin of the Pouter and Tumbler Pigeon.

Supposing you should take a fancy that it would be an improvement in your pigeons to have them pout, then, simply modify their pharanx and œsaphagus, thus enabling them to inflate their crop, and there you have your Pouter. Should your passion get the better of you, and you should tumble in your rage, and should want your pigeons to tumble also, we do not know the length of time you may have to wait before you can modify this habit in them; because Sir John has not informed

us, neither has Mr. Darwin, but he tells us of the origin of the Tumbler pigeon. Mr. Darwin says: "Some one"—Remember, gentlemen, that Mr. Darwin takes no advantages when proving the origin of species or of acquired habits. He commenced with "*one* primordial animalcule ancestor." "Some *one* anthropid ape first gave birth to man." "Some *one* cuckoo occasionally laid *one* egg in another bird's nest"—we cannot inform you where she laid her other eggs, but at that period of their evolution, cuckoos may have laid but one egg which produced twins. Prof. Haeckel sticks to number *one* also. "*One* dog, *one* bull, *one* crooked-legged lamb." Natural Selection, even, has found that "Number-one" is not only the most important, but also a lucky number; because in a district or habitat, *one* creature can secure more food and females than if there were two or more on the habitat, and, "in its battle for life," as Mr. Spencer says, "be more able to survive and transmit its peculiarities to posterity." So Natural Selection has stuck to "number-*one*" ever since she commenced to select. Consequently, Mr. Darwin has done the same thing, and says:

"Some *one* ancient pigeon showed some slight tendency to tumble; so by long continued selection in successive generations have made Tumblers what they now are."

Thus we find, that if nature has taken crooked ways, she has also taken pouting and tumbling ways; and we shall find her taking still more singular ways. Prof. Helmholtz has truly said:

"Nature seems to have taken delight in accumulating contradictions, in order to remove all foundation from the theory of a pre-existing harmony between external and internal relations."

Prof. Jubal Disapproves of Prof. Haeckel's Remarks About Alfred Wallace.

We have already informed you, gentlemen, that Mr. Alfred Wallace was really the first naturalist who, as we may say, discovered the law of Natural Selection. When speaking of Mr. Wallace and mentioning this fact, Prof. Haeckel says:

"It is most unfortunate, that the imagination of this gifted naturalist has, since writing on Evolution, become diseased;

that now he only plays the part of a spiritualist in the spiritualistic society of London."

Now, for our part, we do not approve of these remarks. Prof. Haeckel is not justified in pitying a gifted naturalist like Mr. Wallace. If the mind of Mr. Wallace has evolved so far beyond that of the Professors, that he can see, feel or hear immaterial, smell, taste and drink material spirits, and has so far modified his internal relations, as to enable him to naturally select the kind of spirits which are more advantageous and beneficial to his organization, than has the Professor, this should be set down to his credit. The Professor need not be pitying, jealous, nor angry with Mr. Wallace, because he does not agree with him on Evolution in regard to man. Mr. Wallace has, like the pigeons, some slight tendency to "tumble" to, but not to "pout" at, that "Ancient Fable of Creation," and says:

"The whole universe is not merely dependent on, but *is* the will of higher intelligences, or of one Supreme Intelligence." And further, "that upon the appearance of an animal endowed with a mind, the forces of nature, instead of continuing to exert their wonted sway, were held in check, and made subservient to his higher nature. Man has escaped Natural Selection. Man has existed, and will exist, in the same form when other animal forms have and will change. The difference which separates mankind from other animals must have been produced before he became possessed of a human intellect. Natural Selection could only have endowed savage man with a brain a little superior to the ape; whereas, he actually possesses brain a very little inferior to that of a philosopher."

Sir John Lubbock and Prof. Huxley agree with Mr. Wallace, and say:

"The Engis skull, the oldest known, was contemporary with the mammoth and cave-bear. It is a fair average skull, which might have belonged to a philosopher."

This fact proves what we first stated, that far back in the dim past, even at the time of the cave-bears, man was philosophizing, and asking, What am I? Whence came I? And whither am I going? But up to the present time, notwithstanding the wonderful discoveries of Mr. Darwin and Prof. Haeckel, man knows no more about the matter, than did that ancient cave-dweller, Mr. Engis.

In regard to Prof. Haeckel's remarks about Mr. Wallace, we

have said, that the Professor is either trying to cast a slur on Mr. Wallace on account of his "fable" weakness, or is envious of him because he first discovered Natural Selection. We are inclined to believe that it is the latter, because the Professor can get tailless dogs only, by cutting off their tails, while Mr. Wallace can get a whole dog, of any kind you may fancy, out of another dog. The Professor can get a slab-sided, short, crooked-legged sheep only, which cannot jump the fence and eat the neighbor's grass, while Mr. Wallace can produce a long-legged dog, which can not only jump the fence, but eat the whole sheep afterwards; and can, should he so desire, modify the power of scent in this dog, as to enable him to track the Professor by the lingering odor of Limburger in his boots, all the way from Jena to "Massachusetts in North America," that is, should the Professor, like Mr. Wallace's shrub, "vary" in his choice of places where he would spend his vacation, and should decide upon making a visit to "Seth Wright." In case the Professor should do this, Wallaces's dog could track him, should he ride one of his tailless or a hornless bulls even, or take one of his tailless dogs along with him to howl, in case the grasshoppers did too much fiddling.

As we have stated, if Mr. Wallace has become such a good philosopher as to be able to see, hear, feel, smell, and particularly taste spirits, we have no doubt that the Professor is philosopher enough to drink them, should they come in the unearthly garb of "Schnapps," even.

Therefore, we stand by Mr. Wallace. If he has gotten into the "London society" of good social spirits, we congratulate him on the good taste of his natural selection, and are glad to learn, that he has evolved, developed, modified and acquired by "constant use," a good strong organ of thirst in his internal relations. And, should his London society be a good habitat; one where he can get the largest amount of liquid-food with the "least expenditure of force," we have neither any doubt of his surviving, nor any fear of his thirsty organ lapsing into a rudimentary condition.

But, in regard to what man has been able to accomplish in producing variations in plants and animals, Prof. Huxley has grave doubts as to there ever having arisen a new species by

these means. Prof. Winchell very forcibly presents this in his work on "Evolution;" and says:

"According to the hypothesis of derivation, the varieties of domesticated animals and plants are to be regarded as incipient species capable of diverging further and further from their original types. Varieties ought, therefore, occasionally to come into existence so divergent from the primitive stock that the phenomena of hybridity should be possible between them—*i. e.* the joint offspring of the variety and the original stock, or two different varieties of the original stock, should be incapable of generation. Such a phenomenon has not yet arisen, and the Darwinists admit the fact with concern."

Prof. Winchell then quotes Huxley, who says:

"'I do not know that there is a single fact which would justify any one in saying that any degree of sterility has been observed between breeds absolutely known to have been produced by selective breeding from a common stock. If it could be demonstrated that it is impossible to breed selectively from any stock a form which shall not breed from another produced from the same stock; and if we were shown that this must be the necessary and inevitable result of all experiments, I hold that Mr. Darwin's hypothesis would be utterly shattered.''

Should the Professor be right in this, then, whatever variation may take place in species under the influence of physical conditions, it is restricted within fixed limits; and if there has never been shown a single instance of a new species being produced, even by selective breeding, it would seem, that the doctrine of the permanence of species has not, as yet, been shaken. But we will ask Mr. Darwin about this, and some other things connected with it.

Prof. Jubal Meets Mr. Darwin in London, and has a Conversation with him on Some Subjects.

Gentlemen, before we treat these subjects in a more serious and philosophical manner, we desire to relate a conversation had with Mr. Darwin. We were one day walking in London; just as we turned into Cheapside we chanced to meet with Mr. Darwin, and, as we were then preparing this part of our lecture, we thought we would ask him to explain to us a little more fully than he has in his works, how all living things acquire structure, particularly organs, and intelligence to use them both for food

and self-protection; also, in regard to organs which have been lost, either by mutilations, accidents or disease, being sometimes transmitted to offspring. Mr. Darwin was glad to meet us, and said it would afford him great pleasure to give us any information in his possession; and remarked:

"As you know, Jubal, I have proved that 'hunger, which includes thirst, was evolved in order to give pleasure and induce animals to eat; also, that social habits were acquired in order to make animals more comfortable and thus profit by living in society;' so let us step into Crockfords, and put my theory into practice by integrating a glass of ''alf and 'alf.'" We did so, when, what Mr. Darwin said, was about this much:

"You are aware, Jubal, I claim, that one of the great fundamental laws of nature is that of Heredity, or 'like begets like, the offspring is like the parents,' who transmit to their descendents, not only their structure, but their habits and intelligence. Should a variation occur, and an offspring be born with organs or habits totally unlike either of the parents, even in cases of monstrosities, I attribute these to the law of Reversion, or the leaping back to some ancient progenitor who possessed the organs or habits in question. In regard to organs: In my 'Descent of Man,' I have put it in these words:

"'In order to understand the existence of rudimentary organs, we have only to *suppose* that a former progenitor possessed the parts in question in a perfect state; that by the law of Reversion, offspring sometimes leap back to such progenitor, or rather, these characters leap forward into life.'

"I have also, in my chapter on 'Inheritance,' given many instances of injuries or mutilations having been transmitted to offspring. I have stated it thus:

"'The wonder is, indeed, in all cases, is not that any character should be transmitted, but that the *power of inheritance should ever fail.*'

"But in regard to direct transmission of peculiarities, those partaking of an inorganic nature, I have some doubts. Without further evidence, I do not accept what some travellers and natural philosophers tell us. Such, for instance, those cases related by the traveller, Chawmunsen, one of which is, that of the flat-headed Indians in North America, whose young papooses, he says, are born with a flat stone, fastened by a sort

of umbilical cord, on the top of their heads; because inanimate formations are not, so far as we know, produced by genera tion, nor transmitted to offspring. And, notwithstanding Prof. Huxley says, that 'minerals may be descended from atoms which inhabited some special part of the nebulous cosmos.' I require further evidence before accepting what Chawmunsen positively asserts, and vouches for the fact, from having witnessed it upon more than one occasion, that the Patagonian babes are born with bone-rings in their noses; for, as yet, we have met with no instance in Europe, of pigs having a litter of ring-nosed young.

"We know that often, very often, animals and men are born with holes in their ears and noses; these cases can be accounted for by their having leaped back to some ancient progenitor who possessed these peculiarities in a perfect state, but this is not direct transmission. Still, we do not see how the iron composing the shoe of an ancestor can be transmitted to the wild horse of the Pampas, as Chawmunsen relates that they are. We have found no case of a child inheriting the artificial glass-eye, the cork or wooden-leg, nor the iron hooks which are sometimes fastened on the ends of arms when the parent has had portions of these limbs amputated. Although, through the higher senses, as of the imagination, which, being strongly excited, may cause, as in the case of the Jews of Bonn, such variation in the functional conditions of the mother, as to produce an abnormal or somewhat monstrous birth, but not of iron, glass, or cork. I know, that 'variety is co-extensive with heredity; that no organization is exactly like either parent,' still, I do not think that the shoeless horse, the ring-nosed Patagonian, or the cranial-pressed Indian can transmit such characteristics.

In the case of the horse, the acquisition of the iron shoe might be accounted for from the fact, that all organs are acquired by animals for their use and benefit, these, as well as the whole structure, frequently becoming modified. It is well known, as I have stated, that 'the wild horse of the Pampas, and the Puno ponies have become considerably modified.' Habit has much to do in the acquisition, preservation and increase of organs. Thus the wild horse may have acquired an iron shoe from his habit of standing in the waters of some ferru-

ginous spring where he came to drink, and finding from repeated visits to this particular spot, that his feet became less sensitive to the roughness of the Pampas, would, no doubt, visit the place oftener and remain longer, because all animals seek relief from suffering. For instance, should a change of temperature take place, as of cold, and the animal cannot migrate, it then immediately commences to develop a thicker coat of hair, feathers, etc. In case of an increase of heat, it lessens its covering. Thus, all animals do from instinct, what man does from intelligence. In cold climates, he makes himself an overcoat. In hot climates he takes off his jacket."

We were glad, gentlemen, to gain this information, and told Mr. Darwin, that we now had a clearer insight into how some exceptions to a general rule might occur; also, how, and why, some animals develop more or less covering and organs for their own benefit, but we had not, as yet, a clear understanding why in the past, some organisms should have continued evolving organs for offense and defense until these organs reached such enormous proportions, seeing that all organisms began at one point, the primordial animalcule; nor why these organs should be so disproportionate to the size of the animal. The squirrel, rabbit, and mouse, can, and do survive with their means of defense, as well or better than the elk or the reindeer. Mr. Darwin explained to us by saying:

"Prof. Jubal, you, like many others, do not appear to understand the true nature of the laws of Evolution and Natural Selection, and this is the reason why I have been so much ridiculed. Nothwithstanding I have so often repeated, that 'you have only to suppose—and have emphazised this necessity, *only to suppose*—that all animals; all living things acquire organs, habits, power and intelligence to use them in accordance with the conditions of their environment; and also, that it is only through these laws, that the great variety of form, size, color, and organs for offense and defense can be accounted for,' still, I find that 'those who have not attended to the recent progress of natural history' do not understand me.

"Do you suppose," asked Mr. Darwin, "that the now extinct Irish-elk, would have troubled itself developing horns, which often exceeded a hundred pounds in weight, if a lesser size

would have sufficed to protect itself from the snakes which have no horns? You must remember, Jubal, that during the geological period, when the Irish elk existed, there also existed snakes in Ireland.

Again, do you suppose that the *Elephas giganteus*, would have continued evolving until he reached such enormous proportions, had he not found, in his habitat or district, that it became necessary for him to offset numbers with bulk? The habitat of the elephant is in hot climates where there also exists great numbers of small organisms, such as the rabbit, chickamunk, flying-squirrel, gopher, and an innumerable number of insects. The elephant, which is noted for his sagacity, found, that singly, he had no fear of attack, but should these organisms aggregate and combine, he reasoned, that in such a case, they might squeeze or sting him to death; for Dr. Falconer tells us, that 'many elephants are stung to death by insects,' and the only reason which can be assigned why the elephant has survived this long is, that, as Mr. Wallace says, 'the action of his mind foreseeing the future prepared for it.' He could not overcome nor avoid these dangers by natural selection with the rabbit or the pole-cat. He probably did not think of acquiring a protective covering like the tortoise and the armadillo, or the kicking faculty of the horse and ostrich, consequently, he was compelled, as Mr. Spencer says, 'to so adjust his inner relations as to accord with the outer relations of his environment,' thus he developed his enormous size as a protection of self. And you will find, Jubal, that this is what all animals have done and are now doing. Thus, the elephant, with his bulk, found, that he could seek his food wherever he might find it, undismayed and unmindful of the gopher and the field-mouse. It is thus that nature works. It is thus that the fittest survive.

"You will find, Jubal, that the great fundamental law of Self governs and controls all living things in nature, and is the very bottom rock in the foundation of my theory of Natural Selection or Survival of the Fittest. Self is the great moving power which affects everything, from an atom to a world. By this law of Self, which some philosophers claim always *was;* all animals have evolved, developed and acquired the power and means of

getting themselves out of difficulties. It manifests itself in man, but in a slight degree only; scarcely enabling him, should he pretend to be insolvent, to deceive his friends and lie to his creditors.

"Man has developed many faculties which other mammals have not; such as the faculty of lying. No animal below man in the scale of intelligence can, or would exercise this faculty. Man can also so contract, expand and control his facial muscles, that he who runs cannot read; and through the psychological action of his brain, can do that which no other animal can, obey St. Paul: 'Be all things to all men.'

"Man has also developed and acquired moral faculties, and, although he knows that the moral laws are nature's most just and perfect laws, yet he seldom obeys them. It is a singular fact, and one worthy of note, that these laws are the only ones with which nature has not exacted a full compliance. It might be, that man has not as yet evolved sufficiently to obey these moral laws. Take one instance; the immoral act of stealing. We find that even the monkey will steal and look innocent; so, in this respect man has not evolved beyond his ancient progenitors.

"It is the most unaccountable phenomenon in nature of which we know. It is an astounding fact, that out of the innumerable number of living beings that have been evolved on the earth, man, the glory and wonder of the universe; the ruler and controller of all other organisms, should be the only being, that has developed the VILLAIN."

We said to Mr. Darwin, that we agreed with him as to the fact, that Self ruled the world, and the still more wonderful fact, that man, the only living being which is endowed with intelligence, should be the one which has developed the villain. We thanked Mr. Darwin, and said, before we separated, we desired to read to him some remarks of Prof. Credo, as to whether or not man once possessed a tail. Mr. Darwin said, "I shall be pleased to hear them. But before you read them, Jubal, I wish to call your attention to what I have stated in my 'Descent of Man,' that:

"'The main conclusion I have arrived at is, that man descended from some less highly organized form. The grounds upon

which this conclusion rests will never be shaken; for the close similarity between man and the lower animals in inuumerable points of structure, both of the high and of the most trifling importance—the rudiments which he retains, and the abnormal reversions to which he is liable—are facts which can not be disputed; also, that, the tail, though not externally visible, is really present in man, forming the os coccyx. The modification of the basal caudal vertebræ in man may have been effected, directly or indirectly through natural selection. Nevertheless, it may be well to own, that no explanation, as far as I am aware, has ever been given of the loss of the tail by certain apes and man. Its loss, however, is not surprising.'

"But let me hear the Professor:"

PROF. JUBAL.—This manuscript, Mr. Darwin, contains some remarks made by Prof. Credo on some points presented in your theory of Evolution, and some of the hypothesis which have grown out of it.

PROF. CREDO'S CRITICISM OF MR. DARWIN'S PHILOSOPHY—ALSO ON TAILS VERSUS NO TAILS.

PROF. CREDO.—The few adverse criticisms of Mr. Darwin's theory, which you, Prof. Jubal, requested us to dot down, ran about in this wise.

Notwithstanding Mr. Darwin, in his efforts to prove his theories, and referring to other naturalists to sustain him, nevertheless, throughout the whole of his works, so far as we can judge, has manifested grave doubts of their correctness; often admits that he knows nothing about the matter, and frequently contradicts himself. He commences his "Descent of Man," by saying:

"He who wishes to decide whether man is the modified descendant of some pre-existing form, would probably first inquire whether man varies, in bodily structure and in mental faculties; and if so, whether the variations are transmitted to his offspring in accordance with the laws which prevail with lower animals?"

This is well enough, and just what Mr. Darwin. in his efforts, sets out to prove. He then, under the heading, "Evidences of the Descent of Man from some Lower Form," immediately seizes on the monkey; then the dogs; catches a few birds; gets Pierre Huber to watch the ants; then presents some of the

actions of these, which are, in some measure, similiar to those of man, and demands our acquiesence in, that, "therefore, man has descended from these lower forms."

Mr. Darwin does not get down among the univalve, and bivalve, naked hermaphrodite sea-slugs, crabs, spiders, worms, snails, bees, bugs, beetles, flies, fleas, and fiddling crickets, until near the end of his first volume, but in the middle of it, after going into Africa, hunting for the "Birthplace of Man," and getting among the monkeys, he says :

"The great break in the organic chain between man and his nearest allies, which cannot be bridged over by any extinct or living species, has often been advanced as a grave objection to the belief that man is descended from some lower form, but this objection will not appear of much weight to those who, convinced by general reasons, believe in the general principle of evolution."

Of course, this "belief in the general principle of evolution," must be in the Darwinian sense, for he drops the monkey, and immediately follows this, by getting down among the Marsupials under a sub-heading, the "Lower Stages in the Genealogy of Man," and tells us three pages further on, in his "Conclusion," that :

"The most ancient progenitor in the kingdom of the vertebrata, at which we are able to obtain an obscure glance only, apparently consisted of marine animals, resembling the larvœ of existing Ascidians. These animals probably gave rise to a group of fishes as lowly organized as the lancelet; and from these, the Ganoids and other fishes, like the Lepidosiren, must have been developed. From such fish a small advance would carry us onto the amphibians. The Monotremata now, in a slight degree, connect mammals with reptiles."

Thus, after jumping from one living thing to another, and trying to find the Philosopher's animated stone, Mr. Darwin at last, points us to what ingenuity and knowledge can effect in the way of supporting his own ingeneous theory, by referring us to the works of Prof. Haeckel, who, in his "History of Creation," gives us his origin of man, by telling us, that "man's earliest progenitor was a shapeless lump of mucous, whose form value was not even that of a Cytod," so Mr. Darwin avails himself of the Professor's aid and says :

"In attempting to trace the genealogy of the mammilia, and therefore of man, lower down in the series, we become involved in greater and greater obscurity. He who wishes to see what *ingenuity and knowledge* can effect, may consult Prof. Haeckel's works. I will content myself with a few general remarks. Every evolutionist will admit that the five great vertebrate classes, namely, mammals, birds, reptiles, amphibians and fishes, are all descended from some *one* prototype.

"As the class of fishes is the most lowly organized and appeared before the others, we may conclude, that all the members of the vertebrate kingdom are derived from some fish-like animal, less organized than any as yet found in the lowest formations. The belief that animals so distinct as a monkey or an elephant and a humming-bird, a snake, a frog, and a fish, etc., could all have sprung from the same parents, will appear monstrous to those who have not attended to the recent progress of natural history."

Now, Prof. Jubal, we deny this; deny that the "ingenuity and knowledge of Prof Haeckel" or Mr. Darwin, has enabled them to present any proof of what they claim for their sense of evolution, which implies transmutation; nay, claims, that in their essential elements, things change from what they were; destroys the very principle of nature—that a thing can not become other than itself—annihilates their own theory of Heredity, that "like proceeds from like, the offspring is like the parent," and takes for granted, that one can give that which it has not to give, and can do that which is beyond its nature. The science of Embryology teaches, and Mr. Darwin quotes it under the head of "Embryonic Development," and says:

"Man is developed from an ovule, about the 125th of an inch in diameter, which differs in *no respect* from the ovules of other animals. The embryo itself at a very early period can hardly be distinguished from that of other members of the vertebrate kingdom."

Now, what an outrageous assumption; what a dogmatical assertion for science to make; and how contradictory, to first state, that a minute particle of matter, an ovule of man, "differs in *no respect* from the ovules of other animals," and then, immediately admitting, that they can be "distinguished, but *hardly*, from those of other members of the vertebrate kingdom."

That these ovules do differ, is proved from the fact, that the very moment an ovule becomes sufficiently developed, so that

man can note the difference, he is able to say, "this embryo is developing from the ovule of a man, that, from an ape, or a dog, etc." If there were no fundamental difference at first, then, when and how, does nature or Mr. Darwin's evolution perform this wonderful feat of changing the fundamental essence of atoms of matter into other and different atoms, and change the primal origin of one animal into that of another animal?

Because a difference at one stage of existence of an embryo cannot be distinguished, is this any proof that no difference exists? Does science undertake to use the absence of knowledge as equivalent to its presence? Does it undertake to enter into the region of the unseen, and assert, that there is nothing there? If so, then science claims to know, that there exists no non-material or non-corporeal intelligences. What has science to do with that which is beyond the reach of the senses? Huxley is a scientist, and says, "Scepticism in science is a duty," and on this question of ovules being *identical*, says:

"The simplest particle of living matter *must* possess a highly complex molecular structure, which is far beyond the *reach of vision.*"

We care not how small these ovules may be, nor how much they may resemble each other during their development; the difference is there. The eternal barrier against hybridity is erected, to protect the permanence of species, and prevent a thing from giving that which it has not to give. Never since Creation's dawn, when all creatures were created in their origin or cause; never since the Fiat went forth, "Let the earth bring forth the living thing, each after its kind," has it ever been shown, that one creature, or one atom, has ever been changed, either by evolution, transmutation, or any other process, into a different creature or atom. If they have changed, let science or Mr. Darwin show it, and until this is done, Mr. Darwin's Origin of Species and Natural Selection have no foundation on which to stand.

Mr. Darwin, by exercising some of Prof. Haeckel's ingenuity, seizes on this assertion of science, to sustain him, and to show a resemblance, publishes drawings of the developing embryos of a man and a dog—which are about as much alike, as a young baby trying to suck its toe, and a hairless puppy, with one eye

open, trying to get its tail into its mouth—and presents these as proofs, that man has descended from some lower form. He then quotes Huxley, who, after asking, does man originate in a different way from a dog, bird, frog or fish? says:

"The reply is not doubtful for a moment; without question, the *mode* of origin and the early stages of the development of man are identical with those of animals immediately below him in the scale."

How does this assertion of Huxley's accord with that of, "the simplest particle of living matter must possess a highly complex molecular structure, which is far beyond the reach of vision," also with what he tells us in his "*Critiques and Addresses*," that:

"Hereditary transmission is the result of the victory of particular molecules contained *in* the impregnated germ. *Conditions are not actively productive*, but are passively permissive; they *do not cause* variation in any given direction, but they permit and favor a tendency in that direction *which already exists*."

If this be so; if hereditary transmission is the result of *particular* molecules, contained *in* the impregnated germ, then, these germs, these ovules are not identical, and, do differ in some respect; for, if the germ of a dog did not contain canine molecules, it could not transmit itself to posterity. This proves the assertion made by the science of Embryology to be false, and destroys all Mr. Darwin's arguments based upon it; and is made still stronger when, as is admitted, that "conditions do *not cause* variations."

Now, what does Huxley mean by a "mode of origin" and a "mode of development?" Does he mean to assert, that a mode of development is any proof of the origin of that which is developed? The mode of development may be somewhat similar, but if the efficient cause be not resident in that which "*differs in no respect*," what causes this difference to take place so suddenly during development? It is this efficient cause of the oneness of individuality and the primal origin of species, which are the questions in dispute; not *modes of development.*

Whatever this primal origin may be, or by whatever power it has been impressed on nature, before Embryology, Messrs. Darwin, Haeckel and Huxley are able to assert, that that something, from which all organic existences are produced, these ovules, they must prove, that they do *not* "differ in any respect;"

also give us some sort of an explanation, as to the mode, and about what time these ovules change by development into different kinds of creatures.

But, as, according to Embryology, variations do take place during development from all alikeness, to all unalikeness, then, if this is not caused by the different conditions of the different mothers, what is the efficient cause of these changes?

The fact is, there is none. The primal cause of the difference of all forms is there in the original germ, and Huxley admits it, when he says:

"In the case of all conspicuous and easily studied organisms, it has been obvious, since the study of nature began, that living beings arise by generation from living beings of a *like kind*."

As the whole fabric of Mr. Darwin's evolution rests on the principle, that all organic forms have arisen by evolution from some one single or very few single forms; and, if these ovules now "differ in no respect," we demand an explanation, what constitutes the essential difference between two germs which the nicest microscopic study can not discriminate, but which are so antipodally diverse, that one develops into a sea-weed and the other into an animal; or, between two undistinguishable ovarian eggs, that one becomes a horse and the other a man?

Granting that this change takes place in the womb of the mother so quickly, that in a few or more days it develops sufficiently as to enable one to indicate the species to which the creature belongs. How does this accord with what Mr. Darwin, in his laborious efforts to prove his "Origin of Species," has attempted, by endeavoring to show in what way variations have taken place, *after* these embryonic creatures have left the wombs of their mothers?

Mr. Darwin says, that:

"All species of animals, the great variety of plants, etc., have all arisen by evolution and natural selection, from one single or very few single forms."

Were we to ask him how this could possibly have come about, he would, as he has already done, shelter himself behind "time," and answer us, by saying: "Oh! it takes nature a long time in which to do her work, in order to bring about these results;" and would then refer us to his "Origin of Species," wherein he says:

"Let (A) be a common widely diffused and varying species. The variation will be *extremely slight*, but after a thousand generations, species (A) is supposed to have two fairly well marked varieties. The most divergent of which will generally be preserved during the next thousand generations."

He then carries this slight variation up to the fourteen thousandth generation, and says:

"We may continue the process for any length of time, each thousand generation producing only a single variety"—and winds up by saying—"Now, what I have supposed to represent a thousand generations, each may represent a *million* or *hundreds of millions* generations."

Fearing he has not given nature and his natural selection sufficient "time in which to do their work," he adds:

"And these two families or orders will have descended from two species of the original genus; and these two species are supposed to have descended from *one* species of a *still more ancient* and unknown genus."

We do not wonder, Jubal, that *time* to these philosophers should be like, what our colored friend, preacher Congo, thinks nice clothes are to man, "dat dey cobers a mult'tood er sins."

Does Mr. Darwin think, that *time* is any factor in changing one thing into a different thing; that his mere supposition of a period of time, so long, that the mind of man is lost in its efforts to imagine it, is any proof of his hypothesis? Mr. Darwin knows that there has not existed two hundred generations since Adam. Multiply his hundreds of thousands of millions of generations by thirty—which is counted as a generation—and try to imagine the length of time it has taken to produce an "extremely slight variation." And should you succeed in doing this, then try your powers, to imagine the commencement of a "still more ancient and unknown genus." Why, you might as well try to imagine the magnitude of the earth. The human mind in its efforts to imagine the magnitude of a mountain even, drivels into imbecility. No wonder Mr. Darwin has endeavored to cover the nakedness of his inconsistency with the mantle of "time."

And see how ingeneously he "ekes out the lion's skin with the foxes." See how he keeps his contradictions far apart. For, in another part of his works, he tells us, that:

"We are profoundly ignorant how quickly modifications and variations may take place, either of a high or low degree in the scale."

Compelled to rely on variations to support his theory, he drops his millions of years, and with the fox's skin ekes out his proof of quick modifications and variations by calling on Sir John Sebright to testify, that "in three years he can produce on a pigeon, any given feather, but it requires six years to produce any desired head or beak." Also calls on Lord Somerville, to prove what breeders of sheep can do. "Chalk out on a wall a form, perfect in itself, and then give it existence."

Mr. Darwin is constantly referring us to Mr. Wallace as authority, to show us, that organisms do modify, and how rapidly variations take place. Mr. Wallace says :

"When fashion demands any particular change in the form or size or color of a flower, sufficient variation always occur in the right direction, just when we want them to do so. That the instincts, habits, intelligence, size, speed, form and color of dogs, have always varied so as to produce the very races which the wants or fancies, or the passions of men have led them to desire."

Therefore, Jubal, if these last proofs of variations, that shrubs, flowers, pigeons, sheep, horses and dogs, vary in a few months, or even years, be worth anything, then, it contradicts Mr. Darwin's first assertion, that nature, or his natural selection, takes a long time in which to do their work, requiring millions of years to effect an "extremely slight variation." It will not do say, that man does this. Man has no more power to force nature in her work, than he has to change her, so as to cause her to enable one creature to transmit that which it does not possess.

Thus dogs give by transmission the canine essence, because they have it themselves, they cannot give the feline, because they have it not. Mr. Darwin devotes whole pages in his efforts to prove, that "like begets like, the offspring is like the parent," and tells us, among other cases, that "in Bonn, Jewish children are born already circumcised," and expressed the wonder, that "in all cases, it is not that any character should be transmitted, but that the power of inheritance should ever fail."

That one cannot transmit that which it does not possess, the ingeneous Prof. Haeckel even admits, by telling us, that his

hornless and tailless bulls and tailless dogs, were unable to transmit these, accidently, lost appendages. Why could Seth Wright's lamb transmit its short and crooked legs? Because it possessed them itself. And why could not the tailless bulls and dogs transmit tails? Because they possessed them not.

This brings us to the examination of the assumption of Mr. Darwin, that man once possessed a tail, also, his efforts to show how he lost it.

But before doing this, we desire to call your attention to the last page of Mr. Darwin's "Descent of Man." After wading through 796 pages, describing his journey and researches down among the slugs, snails and worms; gathering his chain, formed of links of lizards, birds and mammals, up to the monkey; and failing to find the link with which to connect man, the "golden link," as he terms it, on the end of his chain, comes to the conclusion, that there is no necessity for finding it, as, "the close relationship and grouping of all organic beings, under the natural system, is utterly inexplicable on the theory of creation."

But, in closing up his labors, he evidently manifests a doubt of his own theory. by informing us, that, at any rate, we have descended from barbarians, and says:

"The main conclusions arrived at in this work, namely: that man is descended from some lowly-organized form, will, I regret to think, be highly distasteful to many persons. But, there can hardly be a doubt that we are descended from barbarians."

So, after describing his astonishment on first seeing a party of Fuegians, he exclaims—"such were our ancestors!" And then displays his contempt for those to whom his work may be distasteful, by boasting of his long line of descent from the "Lancelet," which, Prof. Haeckel says: "is a skull-less, brain-less, memberless worm, and is our blood relation." So, on winding-up. Mr. Darwin, as a choice of descent, seizes on his monkey as a forty-fifth cousin, and to show us his taste, says:

"For my part, I would as soon be descended from that heroic little monkey who braved his dreaded enemy in order to save the life of his keeper; or from that old baboon. who, descending from the mountain, carried away in triumph his young comrade from a crowd of astonished dogs—as from a savage who delights to torture his enemies; offers up bloody sacrifices; is

haunted by the grossest superstitions; knows no decency, and treats his wives like slaves."

We do not blame Mr. Darwin for selecting a little monkey, or an old baboon even, for an ancestor, in preference to those barbarians from whom, he has no doubt, he descended; for the actions of these, bear too strong a resemblance, are too much like many of our civilized practices, to leave any doubt in our minds, that, at least, some of us must have "descended from barbarians."

Now, Jubal, let us examine the question of

Tails Versus No Tails.

It is a most unwarranted assumption, an outrageous abuse of taking for granted, for Mr. Darwin or any evolutionist to assert, that man once possessed a tail. The whole fabric of their sense of evolution, and natural selection, is built on the principle of acquisition. The whole scheme and tenor of their theory is, that organs have been evolved and acquired. Nine-tenths of the pages written by evolution philosophers, from Lamark down to Darwin, are occupied in endeavoring to show how organs were *acquired*, not *lost*. The theory of Evolution would have no existence, did it not rest upon the basis, that there once was a time in the history of organisms when there were no such organs as horns, spurs, legs, feet nor tails.

If, as these philosophers say, that "all creatures evolve, modify and *acquire* organs for their individual benefit, but do not possess the power of developing organs which are hurtful or useless to them," then, the animal man, having more brains and sense than other animals, certainly would not have developed so useless an appendage as a tail, neither for the purpose of assisting him to turn quickly when escaping from his enemies; as a weapon for offense and defense, nor even as an addition to his beauty to assist him when in love. He certainly did not need a tail, like the coon, to enable him to catch crabs; nor, like the horse, to keep off the flies. And even should the action of his mind have foreseen that the time would come, at about the period, as Prof. Haeckel says, "of the middle ages," when he would probably get into a *tournament*, he would not have thought of evolving a tail for the purpose of lassoing "the bride."

Granting even, that man once possessed a tail, the loss of this external basal caudal vertebræ, could not have been effected either directly nor indirectly by Natural Selection, as Mr. Darwin says it may have been, that is, if Mr. Wallace is correct, because, he says:

"Man has escaped Natural Selection. Man has existed and will exist in the same form when other animal forms have and will change. In the case of man, Nature has been held in check, and made subserviant to the demands of his higher nature."

The fact is, that the doctrine of lost organs is an assumed one, for the purpose of connecting man with dumb animals, particularly with the monkey. With all Mr. Darwin's ingenuity while attempting to account for, what he terms, "*lost organs*," he has failed to find even a plausible hypothesis with which to account for his assumed loss of the tail organ in our so-called anthropomorphous ancestors. For, after assuming that man has descended from the monkey, and finding a tail in his way, his ingenuity was much taxed to account for its absence in man, and at last gives it up, and says:

"Nevertheless, it may be as well to own, that no explanation as far as I am aware, has ever been given of the loss of the tail by certain apes and men."

But concludes, that "its loss however, is not surprising." Still, after getting further along, and finding this troublesome appendage still in his way, preventing him from positively connecting himseif with his heroic little monkey, or his old baboon, and knowing, that on his theory, if an organ is lost, it must be accounted for, he was driven to accept the notion that his ancient progenitors "wore it off by friction." For, in his "Origin of Species," when speaking of rudimentary organs, he says:

"Nature may be said to have taken pains to reveal her scheme of modification, by means of rudimentary organs, of embryological and homologous structures, but we are too blind to understand her meaning." * * * "But what are we to do about the rudimentary and variable vertebræ of the terminal portion of the tail, forming the *os coccyx?* A notion which has often been ridiculed, namely, that friction has had something to do with the disappearance of the external portion of the tail, is not so *ridiculous* as it first appears."

We agree with Mr. Darwin, in so far, as that it is not the rubbing off the tails of our so-called ancestors which "at first ap-

pears ridiculous," but that of their ever having them on. This hypothesis of friction, if not ridiculous, it at least contradicts man's experience.

We would ask Mr. Darwin, that since animals employ more than half their lives seeking food, how comes it, that they have not frictioned off their feet and legs? Among mankind, some workman use their hands and fingers 12 and 14 hours out of the 24. Instead of their hands and fingers being worn or frictioned off, they are strengthened and increased in size. Mr. Darwin admits this, and says :

"It is well known that use strengthens the muscles of an individual, and increases the size of organs, while disuse weakens and decreases them."

Friction is the act of bodies rubbing against each other, therefore, if our anthropomorphous ancestors used their tails so violently, and the effect of friction was such, as to wear them off, these tails could not have become rudimentary in the *os coccyx* from *disuse.* This, therefore, upsets the pet Rudimentary theory of Mr. Darwin, namely : that "from disuse, organs lapse into a rudimentary state," like one of the cases he mentions, "of external and internal muscles in our ears with which our ancestors used to erect them."

Now, while Mr. Darwin has made this effort to account for how our so-called ancestors lost their tails, he has never attempted to particularize, nor endeavored to show how tails were evolved or acquired, but is prolific in his account of how, and for what purposes, horns, spurs, pretty feathers, voices, etc., were evolved and acquired.

We call your attention here, Jubal, to the fact, that after all Mr. Darwin's labored efforts to sustain his hypothesis of Reversion ; and knowing, on this hypothesis, that whatever sort of monstrosity might be born, he was compelled to account for its difference from that of its parents ; he attempts to do so, by saying, that :

"The offspring has leaped back to some ancient progenitor who possessed the organs and characters in question in a perfect state, and, although these have lain dormant for thousands of generations, they are ready, at any time, to leap into visible existence."

Granting this, his law of Reversion has never yet, within the memory of the race, leaped back far enough to shake a tail out of the offspring of man. We think, that if our ancient progenitors ever evolved a tail, it must have been done in the way Mr. Spencer tells us, that horn, hair and feather have been produced, by being "thrust out of pits in flat surfaces."

Should this be the case, then, when this tail first appeared to one of that "sub-group of apes," and looked, as Mr. Spencer says, "like the bottom of a beer-bottle," and that ape was the progenitor of man, he would have had that tail in his mouth before a Cyclops could have winked his one eye at old Vulcan. If he did not, it would prove that he was not a progenitor of man.

Prof. Jubal.—After having finished reading the remarks of Prof. Credo, Mr. Darwin made no comments upon them, but, like a social philosopher, said, "Well, Jubal, let the Professor enjoy his opinions, while we enjoy another glass of 'alf and 'alf.'"

Neither shall we, gentlemen, make any comments upon the remarks of either Prof. Credo or those of Mr. Darwin, but will proceed to present to you the strongest and most conclusive proof of "Natural Selection or Survival of the Fittest" of which we know; proof, which will carry conviction home to every doubting mind; proof of a law of nature whose effects can be seen, that is, should you happen to live in the right place; a law which has been of the most momentous importance to those who happen to live in the right place, or more philosophically speaking, whose habitat is where they can get, directly, the greatest amount of beef, the largest and best quality of brains, and, indirectly, that more important thing, Money; and this law is the

Law of Correlation.

As the different laws of nature are disclosed to us by their effects only; and as this law has produced such singular effects, natural philosophers have devoted much time and labor, and have succeeded in tracing them down pretty near to the primal cause. How far Mr. Darwin has traced these effects, we will give you, gentlemen, in the language of Prof. Haeckel, who says:

"The infinitely complicated correlations which exist between the organisms of every habitat or district, and which must be looked upon as the real conditions of the 'struggle for life,' are mostly unknown to us; but among those we do know, the example given us by Mr. Darwin of the relations which exist between cats and red-clover in England, is an incontrovertible evidence of the power of this law in the struggle for life. Mr. Darwin says: 'The red-clover (*Trifolium pratense*) which in England is among the best fodder for cattle, requires the visit of the humming-bees in order to attain the formation of seed. These insects, while sucking the honey from the bottom of the flower, bring pollen in contact with the stigma, and thus causes fructification of the flower, which would never take place without it.

"'The number of bees is determined by the number of their enemies, the most destructive of which are the field-mice. The more the field-mice predominate the less the flower is fructified. The number of field-mice, again, is dependent upon the number of their enemies, principally cats. Hence, in the neighborhood of villages and towns where many cats are kept, there are plenty of bees. A great number of cats, therefore, is evidently of great advantage for the fructification of the clover.'"

After referring to this statement of Mr. Darwin, and giving us additional effects of this law of Correlation, Prof. Carl Vogt, says:

"We consider that cattle which are fed on clover to be one of the most important foundations of the wealth of England. Englishmen preserve their bodily and mental powers *chiefly* by making excellent meat—roast-beef and beefsteaks—their *principal* food. The English owe the *superiority of their brains and minds over those of other nations*, in a great measure to their excellent meat; and this is clearly, indirectly dependent upon the *cats* which pursue the mice. We may, with Huxley, even trace the *chain of causes* to those *old maids* who cherish and keep cats; and, consequently, are of the greatest *importance* to the clover and to the prosperity of England. Thus the *natural character* of the Englishmen and the Gauchos in South America, who live principally on meat and food rich in nitrogen, is *wholly different* from the Irish living on potatoes, and that of the Chinese living on rice; both of whom take food deficient in nitrogen. The latter forming much more fat than the former."

The italics in these quotations are ours.

But, before we show you the strength and force of these proofs of the law of Correlation, in connection therewith, we desire to tell you, that in England there once lived a certain preacher,

which there is called a Parson, and his name was MALTHUS. This parson, fearing, we suppose, that the feed would run short, that there would not be sufficient beef for his small family, wrote an essay on the "Principles of Population," for the purpose of showing that population increases faster than the means of subsistence, and, also, the necessity of stopping the increase of the people by "preventing marriages among the lower orders." This parson, Malthus, said:

"Any man and woman who married after a certain day should have no relief from the poor-laws in case of need; that they had no claim upon society for the smallest portion of food, *even to sustain life*."

This brute of a parson, when he wrote his essay on population, had at that time, eleven children.

At this same time, there also lived in England, another brute —spawned of hell—named, SCARLETT, who was a member of Parliament. He must have been begotten by the "Scarlet beast of the Revelations," for he was beast enough to introduce a measure or bill into the English Parliament for the purpose of carrying out this infamous doctrine of parson Malthus.

This pious, pensioned, lecherous brute, parson Malthus, wanted to put a stop to the laws of nature in others, while he wallowed in his Parsonage, in Surrey County, in England, getting his children, and eating his beef, paid for with the money that the Government squeezed out of these very same poor people, but who never went near this pious, pensioned, parson's Gospel-shop, still, they were compelled by law, all the same, to pay him one-tenth of their earnings in the shape of *tithes*. This being the revenue of the "Church as by law Established."

We do not often get angry, or give expression to our just indignation; but if "old maids, cats, bees and beeves," helped to make the heart and brains of that fellow, we wish, after writing his book, that a chunk off the neck of one of those beeves had choked the Reverend rascal.

We wish he were living now, and we had a good rattan made of the hide of one of those intellect and wealth producing beeves, we would wale the "over-production" skin off his pensioned back. We would make him read the "Morning Service" backwards, and the "Evening Service" with a charitable

Spanish-fly plaster on his insolent, brutal back. We might have stood this sort of philosophy in a self-made, in a self-existent, or even in one of our more advanced agnostical philosophers, as these are not responsible for what they say. We might have stood it in a poet; for poets are less responsible for their vagaries, but from a tithe-gathering, fox-hunting, wine-guzzling, beef-eating, children-getting parson, we cannot stand it. So excuse us, young gentlemen, while we wipe the manly and indignant drops of perspiration from our bald head.

There! we are all right now, and prepared to run the scale of Correlation with Messrs. Huxley, Haeckel, Darwin and Carl Vogt, so as to bring in the old maids as the ultimate cause of the "superiority of the brains of Englishmen and their great wealth;" particularly the wealth of the English coal-miners, who, at the time of parson Malthus, kept their brains and wealth down in pits, where some of them never had one of Mr. Spencer's bottoms of beer-bottles produced in their flat surfaces to shove them out of. For many of these miners were formed and born in these coal-pits, and never saw the light of that blessed sun, where Huxley says: "Newton, Shakespeare, Raphael and Plato were once potential in his fires."

Before Carl Vogt informed us, we never knew that "the English people live now, *chiefly*, on roast beef and beef-steaks, making these their principal food;" but we do know, that they did not do so during the time when parson Malthus was gorging beef, nor for years after that great and just leveller, Death, choked him off; because the evidence published by the House of Commons in 1824, states, that "in Suffolk and Wiltshire, and in other counties, the common food of the laborers, to be *cold potatoes*." "The Judges of the Court of King's Bench, in 1825, declared the general food of the laboring people to be *bread and water*." Also, the "Magistrates of Norfolk, published a scale of wages paid to a single laborer, to be *three pence a day*."

Now, we should think, that a man could not buy much beef for *three pence*, nor obtain much nitrogen from *bread and water*; but still, there may have been no cats in those parts of England, and those Englishmen had to go without nitrogen and superior brains. Yet according to the adage: "That which is one's loss is another's gain," the absence of the cats was good and

beneficial to the field-mice, notwithstanding it was rough on the bees and brains. In the same way it would be rough on the tape-worms should you kill all the men; for Huxley says:

"It is a humiliating reflection, perhaps, that we may be classed as direct helpers to the tape-worm, but the fact is so. We can all see, if there were no men, there would be no tape-worms."

Thus, correlatively, should you kill all the cats, you kill all the bees, clover and beef; thus preventing the Englishman from getting "superior brains and great wealth."

We are sorry that Huxley, Haeckel and Vogt brought the women into the correlation arrangement, even if some of them are compelled to remain old maids and have nothing to fondle but cats; for our experience has been, that if we ever bring the women into any kind of a relation Co., or no Co., there is bound to be some trouble. Therefore, we wish these philosophers had left the cats on the end of the correlation chain.

We have nothing to say against the proof of the "Irishman and the Chinaman being wholly different in character from the Englishman and the South American Gaucho." We have never had the pleasure of seeing a Gaucho, therefore, know nothing to the contrary; but so far as physique is concerned, we do know, that all the Irishmen and Chinamen we ever have seen, were very fat—very fat indeed; while all the Englishmen have been very lean, and with plenty of money.

As to the brains, you must ask Carl Vogt about these, but we have no doubt, that it is owing to their quality which enables the Gaucho and the Englishman to run up a ladder with a hod full of bricks, leaving the Irishman and Chinaman sitting down below, eating their potatoes and rice.

Not being well versed in these matters, we do not know whether saur-kraut has any effect on the question of fat, nor in what physical condition Carl Vogt may be, but we do know, that Mr. Huxley can do one kind of correlative running up; and when you, gentlemen, come to reading his philosophy, you will find how nimbly he can carry a hod full of philosophical bricks up his philosophical ladder, with which to build his philosophical edifice, without help from his tape-worms.

We would like to see a non-nitrogenous possessing Irishman do this. In fact, we have never yet seen, nor heard of an Irish-

man who had anything to do with a brick, except, perhaps, that he might, at odd times, get one in his hat, and when he does, we should like to see some lean nitrogenous Englishman tread on his coat. After doing so, he would be a "wholly different character," and would come to the conclusion, that if English cats caused his superior brains, the Killkenny cats caused the black-thorn with which to knock them out, besides finding himself the next morning with a nitrogenous beef-steak over each eye.

This law of Correlation is the law by which the malt was kept in the "House that Jack built," and we have no doubt, that the writer of that interesting history was merely endeavoring to insinuate into the juvenile mind, the principle of this law; because he gives the effect, and then traces it down to the same cause as does parson Malthus, namely, "Marriage;" and the only difference in the effect from the same cause is, that the no-marriage of the parson would save the beef, while the marriage in Jack's case, saved the malt. Thus, if that

"Priest, all shaven and shorn, had not married the man all tattered and torn, to the maiden all forlorn, who milked the cow with the crumpled horn, that tossed the dog, that worried the cat, that caught the rat, that ate the malt, which lay in the house that Jack built."

The consequence would have been, that Jack would have had no malt.

This law of Correlation has worked the same way, according to Huxley, Darwin, Haeckel and Vogt, in producing the beef, brains and wealth of Englishmen. But for a long time, even these philosophers could not discover the true cause, nor find out where the trouble was, until they ran down the correlation ladder, and found a woman at the bottom of it. Had they read their Bibles, they would have found, related on the first page, the primal cause of all troubles in this world. However, they did at last find the cause of the beef, brains and wealth, in this way.

This is the ox, which so lank and lean,
Around English towns, are always seen,
From clover gathering nitrogen.

This is the clover, red, that grew;
This is the bee, that humming flew
To rob the flower of its honey-dew.

This is the mouse, so cunning and sly,
That caught the bee as he passed by
To pollen the flower, that it may not die.

This is the cat, so nimble and nice,
That made his breakfast off the mice,
[Like the Chinamen do off rice.]

That caught the bee, that humming flew
To swap the pollen for the honey-dew,
That lay in clover, red, that grew.

This is the maiden, old and shrew,
Who kept the cats to hear them mew,
And willing to wed, christian or jew,
Which, among the maids, is nothing new.

So, from old maids, who kept the cats,
That in the fields caught half 'volved rats,
Who caught the bees, that humming flew
In meadows, where the clover grew.

To feed the ox, that made the meat
For the English-man, who always eat
That beef, to form his wond'rous brain,
That with it, he great wealth may gain.

Thus. By the law of Correlation,
Came the brains and wealth of the English nation.

PROF. JUBAL SHOWS HOW THE LAW OF CORRELATION PRODUCES WEALTH AND BRAINS IN AMERICA.

There are some persons, gentlemen, so constituted as to put no faith in the truthfulness of their fellow-man. These persons take nothing for granted; they must have every phenomena act on their senses before they will believe of its existence, and usually say: "Seeing is believing." These persons are Agnostics, who believe nothing but appearances. Still, having seen old maids, they may go so far as to admit, that such beings exist in England; but as to the brains, they insist upon seeing and

testing their quality before believing. This is an unfortunate condition of mind to possess. For our part, our faith is founded on a rock, or rather on four rocks. Haeckel in Jena, Carl Vogt in Geneva, and Darwin and Huxley in England.

The two latter were born and lived in England, therefore, must have seen what they tell us. But, before they informed us, we never knew, that the best cattle were generally raised in the "neighborhood of villages and towns." Nor, when raised, that "Englishmen" or anyone else "live chiefly off the meat, and make it their *principal* food," nor, that the "most important foundation of wealth," is derived from cattle which are specially fed on clover. But we do know, that people raise tolerably good beef on blue-grass in Kentucky; on the natural grass in Texas and in the Territories; though not around the towns.

We also know, that in the Territories, the number of cattle which are raised there, depends upon the number of the raisers' enemies, chiefly Indians. So the law of Correlation holds good in these cases; because in the Territories, this law runs down, directly, to Uncle Sam's soldier's, and, indirectly, to General Crook. In this way:

The wild grass or oats *(gramirus avena fatud)* of the prairies in North America, is among the best fodder for cattle, and in order to produce nitrogen in the beef, it requires to be eaten by the cattle. These cattle, while feeding on this grass, are attended by herders, who drive the cattle to where the grass is most plentiful, in order that they may come in contact with the grass "stigma," without which the accumulation of nitrogen in the beef "would never take place." Now, the number of herders depends upon the number of the cattle. The number of the cattle, again, depends upon the number of the herder's enemies; the most destructive of which are the Indians. The more the Indians predominate, the less the herders to take care of the cattle. The less the cattle, the less nitrogenous beef will be produced, to form the brains, to gain the wealth, of the eaters of the cattle.

Again, the number of Indians depends upon the number of their enemies, principally, Uncle Sam's soldiers. Hence, on the prairies, where soldiers are kept, there are a great many Indians. Therefore, it is evidently a great advantage for the production of nitrogenous producing beef, to have plenty of soldiers,

and we may, with Carl Vogt, trace, indirectly, the cause of the superior brains of those officers, who command the soldiers, to their eating the beef that the Indians could not steal. And still further down the chain of correlation, we can trace the wealth accumulated by the owners of the cattle, who provide the means to pay the soldiers, who gobble the Indians, who gobble the herders who are herding the cattle, who gobble the grass, that makes the beef, that is gobbled by "Yanks," to make the brains, that can gobble the money, that makes the wealth, of this universal gobbling Yankee nation.

There is one singular question connected with this law of Correlation. For, while it affects all things, art, science, society, industries, wealth, governments and brains, why should it produce such different effects in Ireland from what it does in England? The islands are not far apart. There is not a great difference between the soil and the climate, and yet, Carl Vogt says, that "there is a great difference in the character of the people, caused by the English feeding on beef, and the Irish feeding on potatoes." So, it appears, that the "*accursed root*" affects even the law of correlation.

Still, we do not see why correlation should not produce good beef in Ireland, because, there are plenty of bees, and an abundance of clover there, and of the best kind. Some clover there, has three leaves, the Shamrock *(trifolium repens)* and there ought to be more nitrogen and brain producing power in three, than in two leaves, and yet, there is such a great "difference in the character" of these two people. The cause cannot be in the kinds of cats they have in Ireland, for there, they have a superior breed—the Kilkenny cat. But it might be, that while there are plenty of bees, clover and cats, there are not enough old maids, as the "B'ys" look out for this, wealth or no wealth, beef or no beef. Therefore, we must conclude, that the true cause, why there is such a difference in the natural character of the Irishman and Englishman is, that in Ireland there are too many potatoes, and not enough old maids.

However this may be, we have at least learned, that there is one English law which will not work in Ireland, and this is the only one we ever heard of. Should we find even, that this law of Correlation does work in Ireland and produce beef, this is as

far as the law can correlate; because, the producer there, seldom eats the beef.

Should we run this law from tyranny, oppression and infamous laws, down to destitution, starvation, misery and hard work, that is, when you can get it, then, a point might be made, if not for correlation, it can for the "survival of the fittest," admitting even, that Irishmen have not "naturally selected" their present co-relations with England.

After finding the wealth of England, and tracing whence it came, by the law of correlation, down from beef, through clover, bees, mice and cats, to old maids; should Carl Vogt, by diligent search, find the wealth of Ireland, and endeavor to trace whence it came, he would have to commence with the miserable cabin; the turf-fire, the hungry children, and trace on down, not indirectly, but directly, to the potato; down to the sea-weed in times of famine, at which time, the Englishman would eat the pig, but leave the potato and sea-weed to those "Hereditary bondsmen," whose inner relations are generally in accord with their outer relations, in regard to the amount of food on their habitat.

Although the people in Ireland raise the pig on their habitat, they dare not eat him. They have to evolve and transmute him into the "*rint*" money. But, should this present political evolution keep on evolving in Ireland, the way it is now doing, we shall find, that it will evolve an Equal-right shillelah, which will knock these tyrannical English cats into smithereens, and the "Co" out of their "relations."

Since Carl Vogt has informed us, that the "character of the South American Gaucho is the same as that of the Englishman, because he feeds on beef rich in nitrogen," we are sorry that he has not informed us what sort of a "character" the Gaucho has; still, we have no doubt it is precisely like that of the English man; for the reason, that the Gaucho's habitat is the pampas of South America, and his progenitors were Spaniards. These Gauchos lead a wild and independent life; all of which is exactly like the Englishman, especially the wild and independent life part of the similarity.

There is preacher Congo, who, no doubt, has often wished he were an independent African Gaucho, particularly before the

war, and on house-cleaning days, for, as the law of heredity is, that "like begets like," and is the scientific faith, he ought to be an independent African Gaucho; because the habitat of Congo's ancestors was the sands and swamps of Africa, and they lived a wild and independent life, notwithstanding they had but little nitrogen and less of clothes to live it in. We do not mean Congo's more recent ancestors; for, owing to the law of Degeneration, his people are degenerating, and, should they continue doing so until they get to their archetype, to their primordial ancestors, before they lost their tails, could wag their ears and climb trees, they will reach a point when those ancestors had so evolved, selected and survived, as to become, as Bob Bangyour-soul says: "the greatest people on the face of the earth," possessing brains superior to any Englishman, with all his beef. And as to their wealth, why, Congo's ancestors wore rings in their noses, and made slaves of other people whenever they could do so. No Englishman ever did this. Some other people may have done so, and, after some English Queens had set the example, some English ladies may have shared in the profit.

Catch an Englishman with his superior brains and belly full of beef, making slaves of any one, either in Africa. India, or Ireland—not much. It is true, that at one time the English sold a few of their own criminals and paupers to the planters in their North American colonies. But what of that? It is also true, that that pious, canting, "praise God barebones," psalm-singing, bible-banging, hypocritical tyrant, Cromwell, sold 20,000 Irishmen as slaves to the English planters in the West Indies. But what of that? This Caligula, this Cromwell, was so humane, loved justice and liberty so well, that, as Macaulay tells us:

"He subjugated and desolated Ireland as Ireland had never been during five centuries of slaughter which had elapsed since the landing of the first Norman settlers; and, like Isreal, smote the Cannanites, smote the Irish with the edge of the sword, so that great cities were left without inhabitants; drove many thousands to the continent; shipped off many thousands to the West Indies, and filled their places with Puritan Saints."

Notwithstanding all this, if we take the proper view of the matter, we shall find it to be nothing more than a tyrannical love of liberty, a sort of Correlative slavery; the cause being pious brutality, and the effect, that of increasing the wealth of

England, and, in addition to this, the carrying out of the law of Correlation, thus :

This is the Irishman's island. This is the Cromwell, who goes to the Irishman's island. This is the Englishman, who gobbles the men, who live in the Irishman's island. This is the ship, that carries 20,000 Irishmen, who are sold to the planters, who live in the West India Isle of Barbadoes.

Still, this is all right and just under the law of the Survival of the Fittest. So, we have nothing to say against the right of what an Englishman, or any one else may do with an Irishman.

Had some of our equality-loving Americans the chance, they could give the Englishman two in the game and beat him, every time, on the Atreus love they bear for the Irishman.

Supposing the English did ship a few ignorant Irish out of Ireland. What of that? They never shipped any one out of preacher Congo's country to Jamaica, their American colonies, nor anywhere else. They have been vastly superior to that. Granting even, they may have done so, they could not help it, because, the law of their nature ; their great brains ; their Gaucho-like character, of whom Mr. Darwin says, that : "humanity is a new idea to the Gaucho," compelled them to do so. Their natural love of liberty and equal rights—for themselves ; their great desire to stop the co-relation of the lower orders, by preventing marriage among them ; their selling their paupers to the American planter ; their making slaves of these, of the Irish, and stealing negroes, are acts sufficient to justify the comparison of their character being like that of the South American Gaucho. Yes, young gentlemen, Darwin and Huxley are right on the law of Correlation, and Carl Vogt, as preacher Congo says, "ez righter yit."

Now, so far as the law of Correlation affecting Chinamen is concerned, it is quite easy to account for why they have no brains nor wealth, also, why they are like the Irishman in character, but wholly different in this respect from the Gaucho and the Englishman ; because, in China, they carry out the law which parson Malthus wanted, and that other brute, Scarlett, tried to carry out, for the very purpose of reducing the population, and everybody knows how effectual that law has been in China. Having no marriages like those which we have among us, all

they need do there is, to get a sufficient number of brass pieces of money, about the size of a twenty-cent piece, with a square hole in the centre of them, for the purpose of buying rice for the children—and these Chinese are noted for having but few of these—and there is no danger of there being any old maids in China. The fact is, this condition of the biped-woman, is unknown there.

Had parson Malthus been in China when he published his book, he would have passed down in Chinese history as an outside barbarian, who, from having advised the enactment of a law which would vitiate a law of nature, was condemned by the just order of the Celestial Emperor, to put in practice the law of Hari kari.

For our part, we wish this parson had been a Missionary in Hongkong, or some other Kong, at the time he got out his first edition, as he would have found, that beef even, would not have saved him.

Carl Vogt says, the cause which has produced the difference of character between the Gaucho and the Chinamen is, that the Gaucho takes food rich in nitrogen, while the Chinaman feeds on food deficient in this important article, rice forming more fat than lean.

Whether this is so or not, it is certain, if you give a Chinaman plenty of rice, with which to form non-nitrogeneous fat, he will feel "belly" good. He will need no nitrogen; should he, nature, with Natural Selection to assist her, will so modify his meat desiring organ, that, unlike the old maids of England, he will eat his cats, instead of cherishing them. And rats on toast will then be brought in contact with his gullet "stigma," thus fructifying the power of his nitrogeneous producing organs, without which his lean "will never be produced," particularly should his habitat be in the "neighborhood of villages and towns, where," if not musical organs, "cats are kept."

End of Lecture Eight.

LECTURE IX.

SIMILARILY OF TASTE IN MONKEYS AND MEN. PROOF OF MAN'S DESCENT FROM THE FORMER INTERESTING GENTLEMAN.

Young gentlemen, before we find the missing link, we will run over the proofs, and show you how were evolved taste, color, dress, architecture, attachments, language, religion, revenge and the sense of justice. Notwithstanding the connecting link has been lost, these proofs wlll convince you, that man is descended from some lower form. Further, that as some monkeys, in these latter days, cover themselves with leaves, build platforms, make and throw mud, drink brandy and beer, and revenge themselves, these habits and tastes, being similar to those of man, are conclusive evidence, that man is a descendent of some member of a sub-group of apes, which once existed on the African Continent. This is what Mr. Darwin tells us, and, for the purpose of proving it, gives us a case of an American monkey who got drunk on brandy. Mr. Darwin says:

"An American monkey after getting drunk on brandy, would never touch it again, and thus was wiser than many men. This, and other similar facts prove how similar the taste must be in monkeys and men."

While this is strong proof, still, we are inclined to think, that Mr. Darwin has made a mistake, and, in this case, has not proved similarity, because, our experience of mankind has been, that this monkey was not at all like man in this respect. Had Mr. Darwin presented this case to prove, that this monkey did what some, but very few, men do after getting drunk on brandy or any other pleasant beverage; become wise and take a pledge never to touch brandy again, he would have made a stronger point, and we have no doubt but this was the case with that monkey.

Did we know as much about the habits of monkeys as we do those of man, there is no doubt, that after this monkey got sober,

and the trembles out of him so that he could sign his name, he joined some Anthropomorphous Temperance Society, and "never touched brandy again," that is, when other monkeys were looking on. Should this be the case, then, he acted like man; because we never yet saw a real, square, up-and-down member of such society, who would touch brandy in company. If he had a *very* severe touch of the colic, he might just put his lips to it. Man is liable to colic, especially in the fruit season, and it is a prudent and proper precaution to keep an antidote on the top-shelf of the closet, in case of need.

There is no objection to this. It is in accordance with nature, as all animals seek relief from suffering. We find, that dogs even, eat grass as an emitic when nature demands relief. Then, why should not man, with his superior intelligence, sometimes make a brute of himself, by drinking a decoction of Rye *(Hordeum secale)* when nature clamors for stimulation?

But when a man whose social habits have so far degenerated; whose thirsty organ has lapsed so far into a rudimentary condition, as to cause him not only to forget his duty to himself, family and neighbors, but in his daily, and more particularly, nightly walks of life, to disobey and stubbornly refuse to follow the good and wholesome advice of St. Paul, "to take a little for his stomach's sake"; also, the injunction of Solomon, "not to look upon the wine when it is red," but to drink it, which the injunction clearly implies; we say, when a man retrogrades to this extent, notwithstanding he may be able to keep his perpendicular, we have no doubt, but that he has reached his equlibrium, and is fast relapsing into that state of anthropomorphitical apeism out of which he arose.

In all the phases of human life, there is no sight so sad to the feeling heart, as that of a man, the wonder and glory of the universe, becoming so lost to all the social decencies; so benumbed in all the better and higher qualities bequeathed to him by his ancestors; to the examples set and recorded for his guide, by the wise and good, from Noah down to the keeper of a modern gin-mill, as to follow the example of an American monkey, by not touching brandy again. But human nature, as a rule, still triumphs, and we are rejoiced that Mr. Darwin has given us the exception instead of the rule, nay, overjoyed to find, that

this case of similarity occured with an American monkey ; one from whom we have *not* descended, as Mr. Darwin clearly proves, for he says :

"Man cannot have descended from the quadrumana of the new world. The Gorilla and Chimpanzee, are our nearest allies. Our early progenitors lived on the African Continent."

We would remark in this connection, that it is strange, that Mr. Darwin, who never forgets or overlooks anything, from a murdering cuckoo to a drunken monkey, should, in proving similarity, have selected an instance from among American monkeys, and not relied more upon the direct proof of our descent, by giving us Brehn's account of the similarity of monkeys in Africa with those of men, all over the world.

Speaking of the African baboons, Brehn says :

"The natives in Northeastern Africa catch the wild baboons by exposing vessels filled with strong beer, by which they are made drunk."

Then, Brehn gives a laughable account of their behavior and strange grimaces, and says :

"The next morning they were very cross and dismal, and would hold their *aching-heads between both hands*. When more wine or beer was offered them, they would turn away in disgust, but *liked the juice of lemons*."

This testimony is worth something, for it not only proves similarity of taste in man and monkey, but the similarity of effects produced after tasting, besides, proving that man must be a descendant of the African monkey—and a Northeastern one at that. And how graphic and correct is Brehn's description. No man living, except, perhaps, a temperance lecturer, can describe the several effects produced from a single cause, without having often experienced them. The proof of similarity by Brehn in this case is very strong. Thus: the beer-brewer leaving his beer vessels exposed ; the temptation presented to all animals to steal the beer ; the animal, man, stealing and imbibing ; the getting drunk thereon—of course, we do not include the temperance lecturer—afterwards the strange grimaces and contortions of the muscles of the drinker, in his efforts to untie the knot in his tongue.

Should the drinking be done in a saloon, then, the winking of the left eye of the drinker at the bar-keeper ; the repeated as-

sertion, I'm all righ'; the more oft-repeated request, le's 'sav 'nuth'r; the willingness to fight anything, from the wooden-man outside the cigar-shop to the car-conductor; and the human behavior while going home, satyrically leering and making cupidical faces at the ladies, clearly prove, as our inexperienced temperance lecturers tell us, are some of the effects produced in those who disobey St. Paul, and take too much for their stomach's sake.

Next, observe the similarity in man's future actions. The next morning—the knot out of his tongue, but it feels like a piece of his wife's fur cloak. His efforts to spit it out; the certainty that his head will split; the "holding of its two halves together with his two hands," while the firm intention, that this shall be the last time, strengthens his resolution, that, in future, he will follow the example of the American monkey, by "never touching brandy again."

Then comes the cross temper; his disgust when his wife suggests "some more hair off the same dog;" his "relish for lemons," which get the piece of fur-cloak out of his mouth. He feels better—thinks he will go down town, take a Russian bath, and join the "Good Templers."

On his way, he meets a friend; friend, being social, desires a toddy; man thinks one more will not hurt; reciprocates the toddy; reciprocation becomes chronic; his left eye again winks; sees two friends; two bar-keepers; two toddies; tries to kick two dogs; tongue in double-reef again; don' ble'v bou' 'mer'-can monk'. I'm bes' man 'bar-roo', can lick any da'n Goo'-Tem'ler.

Thus, young gentlemen, Brehn's proof is of more value than that of Mr. Darwin; because, all this is natural, human, and clearly proves, that the more we evolve, the more we will practice the higher virtues. This also shows us to what degree man has already evolved on his way to perfection beyond the Old World monkey. Having already become the prince of living things, sooner than cause a blush of shame to mantle the cheeks of his illustrious ancestors, should he not have the chance to steal beer, he will sell his wife or his shirt sooner than go without it. And the very fact of his keeping sober under compulsion, only, proves him to be "the wonder and glory of the universe."

Origin of Language.

Young gentlemen, we have already shown you from where we derived the sentiment of astonishment, still, previous to this, there was a time when no creature on the earth could either be astonished, sing, growl or talk; this could not be done until after Evolution had so far progressed as to produce a larynx. But how mankind came to have a language, we will let Mr. Darwin tell us. He says:

"Some unusually wise ape-like animal first thought of imitating the growl of a beast of prey, so as to indicate to his fellow-monkeys the nature of the expected danger. And this would have been the first step in the formation of a language." * * * "The fact of higher apes not using their vocal organs for speech, depends upon their intelligence not being sufficiently advanced."

Here we fear, that Mr. Darwin has again committed an oversight; because, had the animal that "first thought of imitating the growl of a beast of prey" been a wise animal *like* an ape only, his fellows could not have been monkeys. Monkeys are too sharp to be fooled by any noisy bugaboo, however wise they may be. They have too much curiosity, and those monkeys would have been bound to find out what that noisy fellow meant. Besides, if that wise ape-like fellow had so far modified his vocal organs as to enable him to give notice of the nature of expected danger to some other animals, it would contradict what Mr. Darwin says, that "all animals modify organs and intelligence to use them for their own benefit." It would also be against the law of the "Survival of the Fittest;" because, had there been real danger near, that ape-like fellow would have been wise enough to look out for "number-one;" kept his mouth shut, and not risked betraying himself to the beast of prey.

While it is a great piece of presumption in any philosopher to differ with Mr. Darwin, still, we are again compelled to do so, in so far, that "the reason why the higher apes do not talk is, that their intelligence is not sufficiently advanced," because we think, that in this respect, the intelligence of the monkey has advanced so far, that he knows when not to wag his tongue organ; because, this is what all animals do, for Mr. Darwin says:

"If any animal should develop an organ which afterward becomes useless, hurtful or injurious to the possessor, it will cease to exercise it."

This is precisely what monkeys do. Many ages ago they have developed the vocal organs and intelligence to use them, but have found out, were they to exercise these organs and get to talking, they would become "injurious and hurtful to the possessor."

This is proven in the certified case of the darkey who went to the menagerie. While there, he got talking to a monkey; but upon finding that the monkey would not answer him, said: "Dat's rite, brudder, keep yo' mouf shet, 'kaze if you let's on you kin talk, you soon fine' youse'f wid a hoe en yo' han'." Besides this, monkeys get angry, should you attempt to draw them out, as Mr. Darwin proves. He says:

"In the Zoological gardens, I saw a baboon who always got into a furious rage when his keeper took a letter or a book and read it aloud to him; and his rage was so violent that, as I witnessed on one occasion, he bit his own leg till the blood flowed." * * * "It is well known that monkeys invent imaginary offenses."

There is no doubt in our mind, but this is the true explanation why monkeys will not talk. They not only refuse to enter into conversation with man, but refuse to listen even, to any instruction or intellectual communication. This baboon knew very well, had he allowed his keeper to instruct him, that he would have to go to work; and sooner than do this, he fooled the keeper by "inventing an imaginary offense"—pretending that he was in a "furious rage and bit his leg till the blood flowed." This proves that the darkey was right in his advice to the monkey.

Origin of Revenge.

We all know how sweet revenge is to the heart of man, and the way we became possessed of this lovely sentiment was, Mr. Darwin says:

"At the Cape of Good Hope, an officer having often plagued a certain baboon, and the animal seeing him approaching one sunday for parade, poured water into a hole and hastily made some thick mud, which he skillfully dashed over the officer as he passed by, to the amusement of the by-standers. For a long time afterward, the baboon rejoiced and triumphed whenever he saw his victim."

This not only proves the origin of revenge in man, but also, that the intelligence of this baboon was sufficiently advanced to

know, that should he put water in a hole, he could make mud, and use it for the special purpose of gratifying his revenge. He must have also known, that officers do not like to get mud on their sunday parade clothes. Had this baboon given himself away much further, he would have soon found himself with a hoe in his hand, making mortar.

There was once a foolish baboon in the Tower of London, who gave himself away by fooling around the dirty dishes, in imitating the dish-washer. The jailer put an apron on him; set him to work washing dishes, and the clothes of the prisoners.

Origin of Dress and Architecture.

The proof which Mr. Darwin presents of the origin of dress and architecture is conclusive. Mr. Darwin says:

"The Orang is known to cover itself with leaves, and to protect itself from the heat of the sun, throws a mat over its head. The Anthropomorphous apes build for themselves platforms. In these habits we see the *first* steps toward dress aud architecture as they arose among the early progenitors of man."

What better proof than this do we need, that man has descended from some anthropomorphous sub-group of apes? When we find apes, in our own times, building platforms, and orangs covering themselves with leaves and throwing mats over their heads, can there be any doubt that these habits were those of our progenitors, when they took the "first steps toward dress and architecture?"

We wish Mr. Darwin had informed us, as to whether or not the ancient orangs made, or the modern orangs make these mats themselves, or get them from the corner grocery. Still, we are glad to learn the origin of the French milliner, as we can now account for the scanty cut of some dresses, by some ancient progenitor of milliners having had the habit of cutting dresses in this scanty style; and, owing to the law of Reversion, these modern milliners have leaped back to this ancient progenitor. Should some milliners leap still further back, we might, possibly, have dresses cut in a much *moire antique* and primitive style.

But while we are rejoiced to learn the origin of dress, we are still more so to learn that Michael Angelo, Sir Christopher Wren, and those ancient Greek, Ionion, Thebian and Corin-

thian architects, were all descendants of Anthropid apes. We can well understand now, how those architects who planned the New City Hall in San Francisco, could have descended from almost any kind of an ape—this building being the best evidence of a "first step towards architecture."

Origin of Permanent Attachments.

Although Mr. Darwin did not discover the origin of permanent attachments, he gives us an account of how they were discovered, and, in order to show us, that we derived our sentiments from some lower form, says:

"Snails have permanent attachments. Two snails were in Mr. Lonsdal's garden, a small and ill provided one. One of these snails was weakly. The strong and healthy one climbed over the wall into a well stocked garden. Mr. Lonsdal concluded that it was going to desert its sick mate. After an absence of 24 hours it returned and communicated the result of its successful explorations, and both snails started off on the same track over the wall."

While the origin of permanent attachments among mankind was discovered in this way, there was, at the same time, discovered some other sentiments, such as love, humanity and family duty, besides the sense and ability of putting these sentiments into practice. It is, therefore, fortunate for mankind that Mr. Lonsdal happened to be in his "small and ill-provided garden"—which must have been ill-provided, if it could not support two poor snails, and one of them sick at that—at the time when the husband snail started over the wall, and also, should have "concluded that this snail was going to desert his sick wife."

So, Mr. Lonsdal, knowing, that under the snail law, should one desert its bed and board for *25* hours it works a divorce, was determined to find out whether or not this was the purpose for which the snail went over the wall, and he made up his mind to watch and learn if this snail absented himself for *25* hours; staying right there in his little miserable garden all day and all night, with no company but one poor, little, sick snail. Notwithstanding, he was ultimately rewarded, still, it was very kind in Mr. Lonsdal to stay there all those weary hours, endeavoring to cheer the deserted snail; little thinking, that while performing

a humane action, he was also doing a service, in aiding the "recent progress of natural history."

The next day, when the man-snail came back, Mr. Lonsdal listened to the communication he made to his sick wife as to "the result of his successful explorations," and thus discovered the sentiment of attachment. How he discovered that the attachment was a "permanent" one, we do not know; but, at any rate, Mr. Lonsdal did not wish to lose his snails, for when he saw them start over the wall, he had a mind to stop them, and would have done so, had not snail slavery, about this time, been abolished. So, he contented himself with having made the discovery how mankind became possessed of permanent attachments, and concluded, after taking a good sleep, to write to Mr. Darwin and inform him of it.

Now, gentlemen, since mankind has learned that "snails possess permanent attachments," we think the French people ought to stop eating them. For our part, should Mr. Lonsdal, or any one else, find out, that oysters possess this slimy sentiment, we will get down to clams and mussels. The next time we lunch off terrapin, should we find a Damon and Pythias among them, we shall call for mock-turtle.

Origin of Different Colors in Animals.

We shall call on Mr. Wallace, to inform you, gentlemen, of the origin of the different colors of animals. Mr. Wallace says:

"The lion is tawney, so as to hide in the desert. The tiger hides himself among the bamboo, so that the vertical stripes with which his body is adorned will assimilate with the vertical stems of the bamboo."

There is no doubt, that at present, the lion *is* tawney, that is, lions who hide in tawney deserts; and the tiger has stripes, but how they became so, is what we have to learn.

First, as to the lion. Before he modified the tawney color, he was compelled to hide somewhere else than in the tawney desert, but, after modifying his tawney color, thus fitting himself for hiding in some more secure place than formerly, he simply did what every thing else does when it wants to hide from, either its enemies or its prey. Should it heretofore have been hiding in a

cave, behind a rock, a tree, a stump, or in some dense foliage; and fearing that it is not secure, it goes out into the open plain or desert. Should the animal be a man, and the "Cops" are after him, he goes out on the *Boulevard*, or saunters in the public squares.

Now, the lion, having already acquired a knowledge of the natural principles of color, light and shade, knew, that every object in nature, whether white, black, brown or tawney, casts exactly the same colored shade or shadow. Therefore, if he wished to hide in any particular place, he knew that he must modify the right color. So, he decided on the tawney color and the tawney desert as the most secure place for hiding, as, then, all he need do, would be to get out on the desert, where the sun had a chance to cast his shadow on the ground; crawl behind it; keep still and not growl, because, being a beast of prey, he might give notice and scare the monkeys.

In regard to the tiger. He was not going to trust to the shadow arrangement. Possessing a more vertical mind than the lion, he decided that among the bamboo would be the most secure place for hiding. So, in order to "assimilate with the vertical stems of the bamboo," he modified till he got on his hide, like St. Paul, "forty stripes save one." The odd one which Paul did not get, was the very one the tiger most needed, because Paul, getting but thirty-nine stripes, could not get "even" with the bam-jews, while the tiger, after getting the extra one, was enabled to get "even" with the bamboos.

Prof. Huxley says: "The Siberian tiger has a longitudinal stripe down his back." How this came about we are unable to explain, unless it might be, that the tiger in Siberia, having observed that the Russian convicts who escape, and are hiding, have a longitudinal stripe down their backs, modified by the knout, came to the conclusion, that, if a Russiun convict can hide with that kind of a stripe on his back, so could he. Of course, the leopard modified on his skin, spots, for the purpose of enabling him to assimilste with whatever spot he might select for hiding. Thus, in his effort to survive, prevent his enemies from "spotting" him.

We are not decided in our mind, as to the agent or cause; whether it is Evolution, Natural Selection, Chance or the ani-

mals themselves, by the exercise of will, which has produced these changes. Mr. Darwin disclaims that organisms modify organs, colors, etc., by the exercise of any act of intelligence or will, or that Natural Selection *causes* anything, but says :

"That Natural Selection is intently watching each slight variation or alteration on its way to perfection, and will pick out with unerring skill each improvement and preserve it."

Still, at the same time, she allows useless organs, characters, and habits, some of them of a monstrous nature, to lapse into a rudimentary state to again leap into life in some future descendant. Witness how Mr. Darwin accounts for monstrosities by their having reverted to some ancient progenitor who possessed the organs, habits, etc., in question, in a perfect state.

So, if neither Natural Selection nor the organisms themselves have anything to do in producing variations, there must be some other agent at work. And as these changes, these modifications, are produced for a purpose, it would lead us to a conclusion, that there must exist some agent with power to choose and cause them. This agent cannot be Evolution, for that is not a *cause*. It cannot be Chance, or the lion might have the stripes ; the tiger the tawny color, and the leopard would "live unspotted before the world." We are, therefore, at a loss to account for these modifications, and shall leave them, as many persons do much of our philosophy, to the imagination.

Elongation of Organs.

Young gentlemen, we have always insisted, and it cannot be avoided, that every theory, every hypothesis is compelled to account for all phenomena which are embraced within their scope, when such phenomena present themselves. Consequently, when we find such singular variations in structure, color, habits, etc., among organisms, and know that these variations once were *not*, but now *are ;* the theory which attempts to account for any of them, must account for all. Thus, when we find the giraffe among the mammals, the swan and crane among the birds, with longer necks and legs ; some insects with longer proboscis ; some plants and flowers with longer tubes and nectaries than others, we ask : How came they so ? The answer is : They have been brought about by straining, and that organ-

isms have increased the length of these organs in order to obtain food.

Owing to the elasticity of the theory of Evolution and the hypothesis of Natural Selection, see how easily this can be proven. Lamark says:

"The short-legged birds, which live on fish, have been converted into long-legged waders, by desiring to get the fish without wetting their bodies. By stretching their legs more and more through successive generations, they have increased their length. The long bill of the woodpecker has been produced by *straining* to obtain insects out of crevasses. The giraffe acquired his long neck, and the elephant his proboscis, by desiring to reach the foliage of the more lofty shrubs. By constantly *straining* for these purposes, an elongation of these organs has been produced."

Mankind has great difficulty in discovering the truth of anything, still, when a truth it discovered, it should be accepted. Consequently, Mr. Wallace accepts the alleged truth discovered by Lamark, but adds: "It is not so," thus keeping within the pale of the One, Holy, Archetypal, Hereditary, Modification Church. Recognizing, as he does, the unity of opinion among naturalists as to the origin of species. Mr. Wallace says:

"The long neck of the giraffe was *not* brought about in the way Lamark describes; but has been transmitted from an Archetype which had a longer neck than usual, which secured more food than shorter-necked animals, and were thus enabled to outlive them."

It is fortunate for the members of our Evolution Church, that its doctrines are so elastic, as to enable its members to stretch their faith, believe what they please, and still escape the ban of heresy. They are also fortunate in not being compelled to give an account for whatever faith there may be in them. Therefore, Mr. Wallace does not explain in what way short-necked animals managed to live at all. But, as there are now existing more long-necked than short-necked animals in the world, it proves that those which outlive others, have longer necks, legs, etc., "than usual."

While Mr. Wallace does not give us the length of the unusual necks of the archetypes of long-necked animals, he does the unusual length of nectaries, particularly those of the Orchid plant; also, that of the proboscis of the moth or butterfly which steals its nectar. He also shows us how these different lengths were

produced. Not that they were transmitted from an archetype in these cases, but by *straining* and *stretching*. Were we old Lamark, we would get after Mr. Wallace for contradicting us so flatly about the giraffe and the waders.

How the Nectary of the Orchid Plant and the Proboscis of the Butterfly Became Elongated.

As Mr. Wallace quotes Mr. Darwin, approvingly, we will quote Mr. Wallace, who says:

"In the Orchid plant of Madagascar, it is necessary that the proboscis of the moth should be forced into a particular part of the flower; and by *straining* to drain the nectar from the bottom of the nectary, the proboscis of the butterfly, as well as that of the nectary, would be increased. How did they become developed? Let us start when the nectary was about half its present length—say 6 inches—and it was visited by a moth whose proboscis was of the same length. The moth carrying the fertilizing pollen at the base of its proboscis, so that by forcing its trunk down to its very base, and *straining* to extract the nectar at the bottom, the flower becomes better fertilized than if the moth could more easily reach the nectar. By this process alone, the length of the nectary of the Orchid as well as the proboscis of the moth would be annually increased."

Rembember, gentlemen, that there was a time when these structures were not a sixteenth of an inch long even, and the way in which Mr. Wallace and Mr. Darwin accounts for their increase is, by Natural Selection.

Now, as neither Evolution nor Natural Selection *causes* anything; and as all of Mr. Darwin's proofs are based on the principle that organisms *themselves* modify organs for their own good, both for offense and defense in their battle for life, we must accept this as a fact, as we cannot account for variations and modifications otherwise, than that these elongations have been produced by the organisms themselves. So then, these Orchids and moths must have worked somewhat in this way.

At some unknown period in time, one variety of the Orchid plant found, that a certain flying thing was stealing its nectar, by thrusting its unusually long proboscis down its nectary, and, as every living thing modifies structure and organs to protect itself in its battle for life, some one of these Orchids must have said to itself: "This won't do. I'll go to work and modify my

structure, by lengthening my nectary; this fellow, then, can't reach my nectar." The next year, or perhaps a million, Mr. Moth comes along, digs and *strains*, but cannot reach the nectar. He finds himself a little short on the forward end. "Oh, Oh!" says he, "what's up? Why, this orchid fellow has been stretching his tube. All right! Two can play at that game. By straining, I can stretch my snoot till it's long enough to reach his nectar."

Thus each one has kept up the battle, straining and elongating; one to get and the other to keep; until the nectary of the plant and the proboscis of the moth, have become 14 inches long. And Mr. Wallace asserts, that "it could have come about only, on the principle of Natural Selection." Upon his finding an orchid with a nectary 14 inches long, he predicts, that "there will yet be found a moth with a proboscis of this length."

This must be so; because, this Orchid flower would not have been obliged to increase the length of its nectary to 14 inches, had there not been a moth which had increased its proboscis 14 inches in length. Therefore, should a nectary be found 14 feet long, it will, according to Mr. Wallace, be a greater proof of the elasticity of Natural Selection.

There is another variety of Orchid [*coryanthes*], which has survived in its battle of life without modifying its structure in this way. This Orchid found, that it was the Bees who stole its honey, so it went to making water; manufactured a bucket with a spout to it, and in the spout laid its pollen [eggs], covering them with glue. It then said to itself: "Now, Mr. Bee, when you come stealing my honey, you will drop into my bucket of water, and have to crawl out at the spout, then, my glue will stick my pollen on your back; and as I know that you are sure to go stealing honey from some other flower, you will drop my pollen into it, so, by this advantageous arrangement, my variety of Orchids will be more able to survive." Here is the account as given us of this orchid, by Mr. Darwin. He says:

"In another of the Orchids [*coryanthes*], its lower lip is enlarged into a bucket, above which stands two water-secreting horns. These latter replenish the bucket, from which, when filled, the water overflows by a spout on one side. Bees visiting

the flower fall into the bucket and crawl out at the spout. By this peculiar arrangement of the flower, the first bee which tumbles in carries away the pollen-mass glued to his back; and when next he has his involuntary bath in another flower, as he crawls out, the pollen-mass on his back comes in contact with the stigma of the second flower and fertilizes it."

There is still another Orchid, the variety, *catasetum*, which adopted another mode of fighting in his battle for life. He got up a telephone. First, he made a vibrating membrane; then, a spring-gun; loaded it, and hid it underneath his membrane. He next made a string or antenna, and tied one end of it to his toe, so, that in case he fell asleep, and the bee should come gnawing, the vibration of his membrane would transmit the fact, and wake him up in time to shoot, and, as Mr. Darwin says, "hit the bee in the back every time."

Still, this variety of orchid is rather weak in one part of his organization. He either has not modified an equal strength in all his parts, or else he loads his gun too heavy, because, when he shoots, he always ruptures himself. But it may be, that he afterwards makes himself a truss, and Mr. Darwin has overlooked it, for he merely says.

"In the Orchid *catasetum* there is a long projection or antenna, and the bee inevitably touches it when gnawing the flower. This antenna transmits a vibration to a membrane, which is instantly ruptured. This sets free a spring, by which the pollen-mass is shot forth in the right direction; and the vicid pollen adheres to the back of the bee."

Those persons who object to this kind of proof of organisms adapting themselves to their environment, and modifying organs both of offense and defense, do not take into consideration what Mr. Darwin says, that:

"Natural Selection acts solely for the good of each; will modify organs to any extent, and pick out with unerring skill each improvement; rendering each organic being as perfect, or slightly more perfect, than other inhabitants of the country with which it comes in competition."

Therefore, there is nothing unreasonable in the water, buckets, nor the shooting arrangements. See how nicely the proof dovetails in with what occurs among mankind. The thief is hit, just where thieves are generally hit—in the back.

This proof is strengthened from the fact, that in the orchid

[*coryanthes*] the water does not overflow until its "bucket is *filled.*" This must be a peculiarity in orchid buckets, or else Mr. Darwin, in mentioning this fact, must, at the time, been under the impression, that, among mankind, buckets overflow *before* they are filled. However, for our part, we see nothing more improbable in what these orchids do, than in what other plants do for like purposes.

Spikes in the Palm and Thorn-bearing Plants.

Mr. Darwin says:

"Spikes in the palm and in the thorn-bearing plants in Africa and South America, have been developed and subsequently improved *by the plant* to serve as a defense against browsing animals. Thus the plant and tree have taken advantage of the quadruped."

Therefore, these plants, like the orchids in Madagascar, having a mechanical turn of mind, upon finding that something was eating them, went to work; made some spikes; "subsequently improved," and drove them from the inside, so that their points would stick the noses of the browsers. Why other plants, on which browsers browse, have not done the same thing, Mr. Darwin has not informed us. It is just possible, that they have not yet developed sufficiently to know how to make a spike, or are too soft-hearted and do not wish to hurt the noses of browsers. Still, there are some plants, which, if they cannot make a spike, can make a stink. So the browsers let the skunk-cabbage alone.

What think ye now, gentlemen, of structure, organs, habits, and intelligence of organisms being brought about by Evolution and Natural Selection? Do not the proofs strike into the very marrow of your reason? Does not your imagination falter and refuse to paint upon her ideal canvas the likeness of Doubt? If not, think on what we ourselves have seen. We have been at Napa and seen the unthinking multitude; the wise and learned savants, who, when reason leaves her throne, retire in throngs within this public institution, to meditate or dream of possibilities in nature. We have known the imagination of these savants become so vivified by anxious thought, and drawn upon to that extent, as to enable them to see snakes crawling in their boots, while others, who, from too long meditating upon that priceless

jewel, Wealth, count their hoards upon their fingers' ends, and shout aloud for all to come and see the reality; but we never yet saw one of these, within whose mind there dwelt the monster, Doubt. And should yet its faintest shadow linger to dim the brightness of your faith, reflect upon the proof given us by Mr. Darwin, that, "*the monkey, the elephant, the humming-bird, the snake, the frog, the fish, etc., have all sprung from the same parent.*"

Reflect upon the proof, that this parent once was gas; that the parent of this gas was fire; the parent of this fire was motion; the parent of this motion was force; the parent of this force is an "Unknowable Reality, whose existence is unthinkable," and then, bow down your reason; accept the teachings of our more advanced philosophers, and, like Mr. Darwin, devote more time to the study of the more "recent progress of natural history."

We have no respect for the opinions of those who are unable to conceive, that they acquired their minds and consciousness from the "film which forms on the underside of the jelly-fish," and which fish, by keeping its "inner cohesions proportionate to its outer relations," enabled Mr. Spencer to symbolize intelligence.

Out upon those who refuse to take for granted, that in which their reason sees impossibility, and who reject the ministrations of those priests of a No-beginning and prophets of a never-ending, who, clothed in vestments, like unto dreaming German blouses and philosophical English ulsters, stand at the alter of speculation, offering sacrifice to the god of modern philosophy!

Links already Found.

Young gentlemen, as we shall leave the finding of the "Missing Link" for the last of our lectures, it may be well for us to give you a list of those links already found. Mr. Darwin sought long and diligently for the lost link, but at last gave it up, concluding that there was no necessity for finding it, that is, if one believes in the general principles of evolution. Mr. Darwin says:

"In attempting to trace the genealogy of the Mammilia, and therefore of man, lower down in the series, we become more and

more involved in greater and greater obscurity; but a most capable judge, Mr. Parker, has remarked, we have good reason to believe that no true bird or reptile intervenes in the direct line of descent." * * * "The great break in the organic chain between man and his nearest allies, which cannot be bridged over by any extinct or living species, has often been advanced as a great objection to the belief that man is descended from some lower form; but this objection will not appear of much weight to those who, convinced by general reasons, believe in the general principle of evolution."

This is true, in so far as the belief and conviction are concerned. When one believes in a principle, he may enunciate it. The enunciation of his conviction is true, but the truth of the principle he enunciates, does not depend on his conviction, whether it arises from a general, or from a particular reason. Therefore we think, that Mr. Darwin is not only unphilosophical, but illogical, when claiming, that a "belief in the general principle of evolution" is a proof that "man has descended from some lower form, particularly when he admits, that "the great break in the organic chain between man and his nearest allies, cannot be bridged over by any extinct or living species."

Prof. Haeckel does not admit of any break in this chain, nor that there is any gulf to be bridged. He has a way of his own in dealing with facts. He simply takes one of his tailless bulls by the horns and says, that "we can look upon the speechless primeval man as the intermediate link."

Although, on the principle of Evolution, there must be a link, somewhere, in this chain of descent which connects man with some lower form. Still, we will give you Prof. Haeckel's perfectly connected chain consisting of 22 links. You will find these links more fully described in his "Genealogy of Man," contained in the second volume of his "History of Creation," under the head of the

Twenty-two Stages of the Descent of Man.

"1st. stage: Monera. The most ancient ancestors of man were of the simplest form imaginable; a formless lump of mucous, which originated in the beginning of the Lauterian period by *spontaneous generation*, out of combinations of inorganic

matter, viz: carbon, oxygen, hydrogen, and nitrogen. The form value being merely that of a Cytod.

2nd stage: *Amœba.* A simple cell.

3rd stage: *Syamæba.* Being of a mulberry form.

4th stage: Ciliated Larva [*Planada*].

5th stage: Primæval Stomach Animals [Gastræda].

6th stage: Gilding worms [Tubellaria].

7th stage: Soft worms [Scolecida].

8th stage: Sack worms [Himatega]. That the ancestors of man really existed during the primordial period in the form of Himatego is distinctly proved, from the fact that they of all known worms were most closely related to the young forms of the simple Sea-squirt.

9th stage: Skull-less Animals [Acrania]. The series of human ancestors, as Vertebrate animals, begins with skull-less animals.

10th stage: Single-nostriled Animals [Monorrhina].

11th stage: Primæval Fish [Selachii].

12th stage: Mud Fish [Dipneusta].

13th stage: Gilled Amphibians [Sozobranchia]. Here began the five-toed formation of the foot.

14th stage: Tailed Amphibians [Sozura].

15th stage: Primæval Anniota [Protamnia]. Which originated out of an unknown tailed Amphibia.

16th stage: Primary Mammals [Promammalia]. Here we find ourselves more at home with our ancestors. The long since extinct and unknown primary forms of all mammals were, of all still living animals, of a class most closely related to Beaked animals. [Ornithostoma].

17th stage: Pouched animals [Marsupialia]. Human ancestors existed among marsupials. The certain proof of our derivation from marsupials is, their being nearly akin to the still living opossum and kangaroo.

18th stage: Semi-Apes [Persimiae]. The small group of Semi-apes are one of the most important and interesting orders of mammilia, containing the direct primary form of Genuine apes, and thus also of man. They originated out of Marsupials of Rat-like appearance.

19th stage: Tailed-Apes [Menoceroa]. Our older ances-

tors from this group probably resembled the still living Nose-apes and Holy-apes.

20th stage: Man-like Apes [Anthropoides]. Of all the still living apes, the Orang and Gibbon in Asia; the Gorilla and Chimpanzee in Africa, are most nearly akin to man. They developed out of the Tailed-Catarrhini-ape of the preceding stage, by the loss of their tails.

21st stage: Ape-like Men [Pithecanthropi]. Although the preceding ancestral stage is already so nearly akin to genuine Men, that we scarcely require to assume an intermediate connecting stage, still, we can look upon the speechless Primæval man as this intermediate link.

22d stage: Men [Homines]. Genuine Men developed out of the Ape-like Men of the preceding stage by the development of the animal language of sounds into a connected or articulated language of words; the higher differentiation of the larynx and the brain. The transition from speechless Ape-like Men to Genuine talking Men, probably took place *during the Diluvial period.*"

We shall make but few comments upon the several links composing this chain, which runs down to the simplest form imaginable, thus clearly showing us whence we came, but will merely call your attention, gentlemen, to the fact, that we commenced our career in this world "in the beginning of the Lauterian period as carbon, hydrogen, oxygen and nitrogen, and all the form value we amounted to, was merely that of a Cytod." What a cytod may be, we are not informed, but the stages and periods at which this different changes took place are no doubt correct, particularly the period at which these changes of the 22d stage took place. This stage, no doubt, must have been as Prof. Haeckel thinks, *during the Diluvial* period, because, as man had developed out of the speechless ape—the *Pithecanthropi* of the preceding stage—the "transition from speechless Ape-like men to genuine talking men," must have occurred during that period, and on board the Ark.

This is the more probable, because Noah had the only pair of Apes there was in the world on board of the Ark with him; and, as there is no record of their ever getting drunk on brandy or beer, or of their ever having spoken in an articulated language

before they went into the Ark, this pair of Apes must have, not only developed these habits, but also their animal language of sounds into a language of words *during* their voyage in the Ark, somewhat in this way:

This pair of Apes, having abundant time and opportunities, probably got under the poop deck of the Ark, and "growling," as Mr. Darwin says, "like a beast of prey," instructed Noah and his family how to converse. This probability is borne out in the history of the Deluge; because, according to that history, Noah was 600 years old when he went into the Ark, and there is no record of either Noah or his three sons ever having spoken a word until after they came out of it, which occurred at the time when Noah had taken too much wine, and went to cursing poor Ham. So, the "transition from speechless Ape-like men to genuine talking men, probably occurred during the Diluvial period." Notwithstanding this probability, we are of the opinion that this transition took place at the 20th stage, at which time Prof. Haeckel says, we lost our tails.

As it is always some *one* animal which first commences to change, by developing new organs or acquiring new habits; some one Anthropomorphous ape, having lost his tail, in his anxiety to find it, no doubt, first thought of enquiring. So, in his efforts to ask his fellow apes, whether or not they had seen a tail lying around loose, "took," as Mr. Darwin says, "the first step in the formation of a language." Should this be so, then, the 22d stage must be one of the stages which belonged to Prof. Haeckel's "so-called Saints," upon which his "Fable of Creation" rode, when traveling on its way through the ages.

The Lancelet.

Gentlemen: Prof. Haeckel, like a good philosopher, commences at the beginning, and has forged a perfect and consistent chain, by which he has connected man with the "Cytod," thus saving us the trouble of entering into the particulars as to how each link was formed. And, as animal worms are important links in this chain, and, as Prof. Haeckel is great authority on what constitutes a worm, we had better let him describe more particularly two worms which were our earliest Salurien ancestors.

The Professor says: "The entire vertebrate tribe, including man, has developed from the worm tribe." You must remember, that this was many million years after we were "Cytods, or looked like mulberries." Still, one of our worm progenitors was the Lancelet, and Prof. Haeckel says:

"The Lancelet [amphioxus] is about two inches long, shaped like a lanceolate leaf; slightly reddish and pointed at both ends. It has no trace of limbs, and is a fish. It has a little black pigment spot, the rudiment of an eye; a little groove, the single organ of smell. The organ of hearing is entirely wanting. It takes its food in an oval mouth, and digests it at the posterior end. It has a ciliated groove on the ventral side of the gill-pore.

"We must regard the Lancelet with special veneration, as that around which alone, of all extant animals, can enable us to form an approximate conception of our *earliest Salurien vertebrate ancestors*. This remark of mine has given great offense to some philosophers, and particularly to unscientific theologians. It hurts the dignity of their humanity. But apart from all this, the Lancelet or amphioxus [skull-less, brainless and memberless as it is,] deserves all respect as being of our flesh and blood. At any rate, the Amphioxus has a better right to be an object of our profoundest admiration and of our devoutest reverence, than any one of the worthless rabble of so-called Saints."

Gentlemen, we are sorry that the Professor became irritated, and made assertions of a personal character, forgetting, we suppose, that when we assert, we do not argue. Still, there are some people so constituted, that they cannot enter into an argument without becoming personal, and dogmatically asserting, and, if contradicted, get angry; they thus, in nine cases out of ten, defeat themselves by so doing. Others, again, get angry at some trivial remark made by an opponent. Should any of you gentlemen happen to get into a philosophical discussion, and are likely to get the worst of it, say something that has nothing to do with the subject in dispute. Should your adversary tell you so, reply: "that it has everything to do with the subject, but, that either his education has been neglected, or his mind is too obtuse to comprehend the application." Become just a trifle personal; pretend that you think him a little deaf, and yell at him. Should he have a glass eye, look straight into it, aud say, "No wonder that he cannot see [emphasize *see*] the application of your remarks to the argument," and you will soon make him

froth. You can always close the debate, and, perhaps, your left eye also, by suggesting that his mother possesses the canine essence.

We think that some of that "worthless rabble of so-called Saints," must have taken some such course with the Professor, about the time he was writing the last part of that paragraph. His inner relations could not have been in accord with his outer relations. The angry molecules of his brain, must have oscillated and ran along lines of indignant resistance, or else, some "philosopher," some "unscientific theologian," or some bad boy preacher, "whose humanity had been hurt," must have put a crooked, slab-sided, theological pin in his philosophical chair. So he gets back at the fable fellows, and tries to get even with them, by producing their "humanity" from so nasty a thing as a worm. He gives them to understand, very plainly, in unmistakable words, that a "skull-less, brainless, oval-mouthed, posterior-degesting, ciliated, gill-pored, Lancelet worm, is their blood relation;" that while he entertains the "profoundest admiration and devoutest reverence" for Julius Alexander Lancelet Amphioxus Esquire, he has no words to *sprechen* his contempt for that "worthless rabble of so-called Saints," who have no desire to be related to the family of Mr. Amphioxus.

The Professor did not give it up with this even. His phlegmatic, Teutonic blood had so boiled; his dogmatical dander so rasped his philosophical head; the theological slab-sided pin had entered so far into the vitals of his self-sufficiency, that he selected a still nastier worm; one whose relations are more ancient than Mr. Amphioxus, or even the "Fable of the Garden of Eden story," and proves, that this worthless rabble are nothing more than highly evolved and naturally selected Squirts. So let us hear the Professor again. He says:

"The Sea-Squirt.

"This remarkable animal is a very ancient form of our still earlier relations than the Amphioxus. It is of the greatest antiquity, and must have existed during primordial ages. Many sea-squirts form insignificant incrustations on the surface of stones. Most of the sea-squirts are very small. We find no fossil remains of the species, because of their being too soft to

become petrified. Of their internal organs, the matured squirt has a glandular mass representing a white liver. It has a little knot of nerves near the front gill-sac which answers to the brain of other worms. Special organs of sense are entirely wanting. The muscular system is very feeble. It has a spindle-shaped heart, and its pulsations alternate in opposite directions. All squirts are hermaphrodites."

Prof. Jubal Admits Relationship to the Lancelet but not to the Sea-Squirt.

We suppose, gentlemen, that the "worthless rabble" will further object to this, but we have little respect for those who are ashamed of their relations, however humble they may be. If some "philosophers and unscientific theologians" have been guilty of not regarding the Lancelet and Sea-Squirt with "sufficient veneration," we do not blame the Professor for denouncing them as a "rabble of so-called" anything.

So far as we are concerned, we have no desire to throw off on any of our kinfolks. We care not how far back the blood may run. If we can trace the Jubal blood, on either side of the house, to a white-livered gill-sac, or a blue-livered hermaphrodite, we are not going to be ashamed of either, not even, should they happen to be "too soft," or their "special organs of sense be entirely wanting." Should we find any of our relations in these conditions, our duty towards them would be, to take them by their "little knot of nerves," set them down, and let them "incrust the surface" of our hearth-stones; while we try to calm their "simple hearts," until their "pulsations alternate in an opposite direction."

Still, with all due deference and respect for the knowledge of a brother philosopher, so far as we are concerned, we do not think, that we are related to the sea-squirt. We never heard of a Squirt marrying into our family. But the Lancelet is related to us, as, on the male side, we can trace the Jubal blood back to a Lancelot, who, being a carpenter, made Round tables for his "boss," who was a worm of the King Arthur species, and whose habitat was on the stones of Windsor.

This King species of worms have survived for many thousands of generations, not only through Evolutions, but through Revolutions, and are still extant. Although, "generally soft," some

fossils of their earlier progenitors are found lower down than the Egyptian stratum. The oldest known fossil which has kept its record in the rocks, is found in that "Ancient Fable" stratum, and is known as the King Saul fossil. The preservation of this fossil, like that of many of the King species of worms, is due to its having absorbed the land, wives and shekels of other worms.

The Lancelet species of worms, to whom we are related, continued evolving, until they evolved themselves into a *Knight-errant* species, and their fossils are found in the Historical stratum; having been deposited there during the Chivalry period. During this period, they had modified some habits which they supposed were useful to them; for when they had nothing else to do, and had a sort of Cupidical fit for cutting and carving; they used to disincrust themselves from the stones of their Castle habitats; go down deep into the primeval forests, and cut the name of their lady-love, Eleanor, Gwyndelin, or whatever the name might be, in the bark of the trees, where no one was likely to see it, and should they, few could read it.

The Historical paleontologist can trace this Lancelet species back to a period when they evolved themselves into a *tournament*, and modified a *cap-a-pie* over their gill-pore. They can also follow them back to a time when they migrated on a horse *to* combat, all the way to Palestine, the habitat of the Turk species, [Saracen,] where they had a great struggle for life, and the indentations found in their fossils, clearly prove, that they were often hors *de* combat.

It appears from the paleontological record, that this Lancelot species, before they migrated to Palestine, had developed a large theological organ, which caused in them a desire to obtain possession of a certain hole, which was in that part of the Palestine habitat, called, Jerusalem, but of which the Turk species held possession. There were, also, so many other theological holes in this Palestine habitat, that it came to be called the "Holy Land," and the only reason why the Lancelots desired to obtain possession of the holes was, simply to gratify this particular theological organ.

After many years of hard struggling, and many fierce combats with the Turk species, which was also called the "Infidel" species, the Lancelots succeeded in getting possession of that par-

ticular hole, upon which, one of the Lancelots, named Godfrey, was immediately modified into the King variety of the species, whose duty was, to take charge of this hole.

There was also, another variety of this species of worms, that had so largely developed this theological organ, that they came to be called, Pilgrims, and King Godfrey permitted these Pilgrims to look into this hole. It appears further from the record, that King Godfrey and his Lancelots, made a mistake in staying and endeavoring to hold possession of this hole. They should have digged it up and carried it off to either their Gaulish or their Anglo-Saxon habitats; because, in the mean time, while they were holding possession of this hole, the Infidel Turk species, [Saracen,] had evolved and modified a new weapon of offense and defense, called a Scimitar. After which, they aggregated in such immense numbers, and attacked the Lancelots with such vigor, as to compel them to drop the hole and get back to their old habitats. And even unto this day, the Infidel Turk species have held possession of this hole.

When this Lancelot ancestor of ours was there with King Godfrey, helping to get possession of this hole, he came near getting a hole made in him by one of those Scimitar organs; and he would have succeeded, had he not, before migrating to Palestine, evolved a plate on his breast, and a scaly-coat all over his body, which he had modified out of some old saws. However, he got the Turk, by running him through with a ten-penny nail; he, being a carpenter, had fixed this nail in the end of a piece of scantling before he left his Anglo-Saxon habitat. And, although he got back safe to his habitat, all he made out of the risk he ran, was a night-cap, which his species called a "hood"

There is some difference of opinion among Paleontological historians and naturalists, as to whether or not this hood was a night-cap, as our Lancelot ancestor never wore it over his gill-pore. Still, he wore it when he went to bed; and also, all day, wherever he went; every other worm on his habitat recognizing the fact of his possessing this hood, although it was not visible to their sense of sight.

We are not certain that it was a night-cap; because when he wrote to our family about it, he spelled the word "night" with a K, and told us in the letter, that "King Richard," who, at this

time was his boss, "had blued his blood; given him a whole section of land which belonged to somebody else; a lot of vassals; a pair of spurs and a Knight-hood."

As the word *hood* is derived from Tar-flat latin, and ends in *lum*, it might be, that our ancestor was a night-hoodlum, because, this "hoodlum" species are found "incrusting the stones" during the night hours. We are confirmed in this opinion, from the fact, that this species of worm never want anything to do with a section of land; they prefer to roam around wild, and, like, the African baboons, can be caught by exposing vessels of beer. When caught, they are sent to some correctional habitat, where they get their food without the expenditure of any force, until the effects of the beer have passed off, when they are turned loose, to again incrust the stones of their old habitats, and steal more beer.

End of Lecture Nine.

LECTURE X.

Finding the Missing Link.

Young gentlemen, thanking you for your atttention and hoping you have profited somewhat from our lectures, we will now close them by endeavoring to find the "Missing Link."

We commenced our course of lectures, by examining the philosophy which rests on the foundation of the Self-existence of the Universe, and gave you the meaning of Self-existence in the words of Mr. Spencer, who says :

"It is clear that by Self-existence we especially mean, an existence independent of any other—not produced by any other; the assertion of Self-existence is simply a denial of creation. In thus excluding the idea of any antecedent cause, we necessarily exclude the idea of a beginning; for if we admit the idea of a beginning—to admit that there was a time when the existence had not commenced—is to admit that its commencement was determined by something, or was caused, which is a contradiction. Self-existence, therefore, necessarily meaus *existence without a beginning.*"

From this foundation, this premiss, we have endeavored to deduce the logical conclusions, that what we call Cause and Effect, are mere illusions, and they must be such, if, "in excluding the idea of an antecedent *cause*, we necessarily exclude the idea of a *beginning*," as this contains the principle of Contradiction. Therefore, we were driven to the conclusion, that "Whatever Is always Was."

But, notwithstanding this conclusion of inexorable logic, we have shown you the several ways in which the sun, the moon and the stars; the fish, insect, reptile, bird, mastodon, mammal and man did begin. We have given you some of the proofs which natural philosophers present, of the principles of Evolution, Descent, and Natural Selection; also, some of the many ways in which there first appeared on this earth, that most wonderful and frightful phenomenon in Nature, Life. Frightful from the knowledge we have that we possess it, and, being the only certainty which is vouchsafed to man, more frightfully appalling to know, that we must lose it.

With Mr. Darwin, we have accepted the first existence of this life in the primordial animalcule, and have endeavored to follow this speck of animated matter, as by a chain, through its Evolving, Transmuting and Naturally Selecting, on its way through its many changing forms, up to man. During our journey, we have found the links of this chain to be of all sizes, forms, colors and habits, but, as yet, have not found the link which connects this chain with Man. This is the link we shall now endeavor to find.

It is not essential that this "Missing Link" should be of any particular form, size or color, as none of these qualities necessarily constitute man, the golden link on the end of this chain. That which constitutes man as a thing apart, and separates him from all known organisms, is his brain, his reason and intelligence. These are the materials out of which this link must be made. Therefore, when we find an organism exercising its reasoning faculties, and adapting them to special cases, which result in special actions being instituted; this must be the "Missing Link."

Natural philosophers have already discovered this link, but have overlooked it in their determination to find it in the Quadrumana or monkey. Finding the monkey with a structure, but nothing else, a little more like that of man than other organisms, they have lost sight of what must constitute the "Missing Link."

Instead of seeking for it in structure, they should have sought for it in the brain, in which to find the link which completes this chain, that reaches across the great chasm which yawns between the biped mammal, man, and all other living organisms, and connects him, in a direct line, with the primordial animalcule.

Notwithstanding we have accepted Mr. Darwin's primordial animalcule as a first form of organic life, still, true philosophy compelled us to get back of this—back to a hypothetical gas-vapor or a nebulous condition of matter, as the molecules out of which this animalcule was composed, once constituted a part of this vapor; also, its vital spark, life, must have existed in this nebulous matter, and, with every atom, had its own history, which, on the principle of evolution, has to be accounted for. And, although Mr. Darwin has endeavored to avoid this, by saying: "I have nothing to do with the origin of the mental

powers, any more than I have with that of life itself," Mr. Spencer insists upon the philosophical necessity of accounting for the whole series of changes passed through by every existence, and says:

"A philosophy stands self-convicted of inadequacy, if it does not formulate the whole series of changes passed through by every existence in its passage from the imperceptible to the perceptible, and again from the perceptible to the imperceptible. If it begins its explanations with existences that already have concrete forms, or leaves off while they still retain concrete forms, then, manifestly, they had preceding histories, or will have suceeding histories, or both, of which no account is given."

But, as we have already said, we will not go back of Mr. Darwin's starting point; and while, from this animalcule, there has been produced all living forms, including man, still, in tracing this chain, we find a break—a link missing, we, therefore, must seek it in some living thing; never minding what its structure may be, which performs special actions by reasoning out cause and effect. After finding such living thing, however small, we can easily modify its structure, form, size and color, by applying the laws of Evolution and Natural Selection; then, by giving the creature plenty of time in which to evolve and select, it can acquire the structure of the animal, Man.

In our efforts to find this "Missing Link," we desire, that you gentlemen pay particular attention, and note what we shall quote from Natural philosophers, as we shall need their testimony.

When one or more persons start out hunting, they need the right kind of dogs; those which have been taught and had experience in finding the kind of game they are hunting. The kind of dogs we shall need, must not only be Naturalistic dogs, but those who have kept up with, and "attended to the recent progress of natural history." So we will ask Mr. Darwin to loan us his favorite pointer, "Natural Selection." Mr. Smith, his English Beagle-hound, and Mr. Belt, his Nicaragua slut. We can easily coax Latreille's French dog along, and a couple more will be sufficient. These we can get as we go along—One, Pierre Huber's Swiss hound; the other, Houzeau's full-blooded intelligent setter. If these dogs cannot find, and trace this "Missing Link," then, there will be no more use in our trying, and

may as well settle down and rest satisfied, that wherever living things came from, or however produced, "Man," as Prof. Credo says, "is an exception; a thing apart; a being a little lower than the angels. with a soul, made in the image of his Creator."

The Hunt.

Now, gentlemen, we will slip the proof-chains off the dogs, and while the scent is fresh, we can judge how they are getting along by their evolutions, and the natural selected music they will make. The morning is fine; there is just sufficient hypothetical frost on the ground; the theory in the air will philosophically enable the dogs to synthetically follow the scent, and, by analogy, know this link, and tree him. Now listen, that you may distinguish the dogs by their yelps. The one in the lead, who is giving mouth to what is on his mind, is Mr. Darwin's old pointer, and is yelping "Ants! Ants! Ants!"

"The Ants. Their wonderful mental powers. Their brain cerebral ganglia is not so large as the quarter of a small pin's head, yet, the brain of the ant is one of the most marvelous atoms of matter in the world; perhaps, *more* marvelous than the brain of man. They communicate information to each other; unite for the same work or in games of play. They recognize each other after many months of absence, and feel sympathy for each other. They build great edifices; keep them clean; close the doors in the evening, and post sentries. They make roads and tunnels under rivers. They collect food for the community, and when an object, too large for entrance, is brought to their nest, they enlarge the door, and afterward build it up again. They go out to battle in regular bands, and freely sacrifice themselves for the common weal. They emigrate in accordance with a pre-concerted plan. They capture slaves. They keep Aphides as milch-cows. They move the eggs of the aphides, as well as their own cocoons, into warm parts of the nest, in order that they may be quickly hatched, and other similiar facts could be given."

The dog next to Mr. Darwin's pointer, is Mr. Smith's English Beagle-hound; and, as he is yelping in the Yorkshire dialect, we will interpret what he has on his mind.

"Among the ants in Switzerland, the masters work with the slaves, but it is the slaves alone who open and close the doors morning and evening. Both in Switzerland and in England,

the slaves have exclusive care of the larva, and the masters alone go out on slave-hunting expeditions. There are frequently hot contests, not destitute of blood-shed, between the would-be masters and the intended slaves. When captured, and once domiciled within the nest of the masters, the slave ant appears to be thoroughly at home, and no effort at insurrection or attempt to gain their freedom is ever made. The masters possess and exhibit the greatest care and solicitation for the welfare of their serfs. Those ants which are termed soldiers, are armed and provided with large mandibles. Their duties are to protect the nest and its inmates, from the attacks of nearly-related enemies, and foreign foes.

"The slaves attend to the milking of the cows, and do all the other work, besides feeding their masters. In England, the slaves alone leave the nest to collect building materials, and food for themselves. Masters in England receive much less service from their slaves than they do in Swizerland. The difference in the habits of the masters in the two countries, depends merely on the slaves being captured in greater numbers in one country than the other."

You find, gentlemen, that the dogs are on the right track, and the scent is freshening. Do you not see that old naturalistic dog of Houzeau's wagging his tail a little livelier? But what is Latreille's French dog doing? He must have lost the scent, or has struck the trail of some habits of this link. Just hear him yelping what his master says:

"During the summer months the male and female ants take their nuptial flight in the air, and after a very short honeymoon, the male ant dies, and the female loses her wedding dress, by dropping her wings."

Now, that dog is just like his master, These French organism frequently get off the track on the question of dress, and often have a short honeymoon; because, after getting married, should they find that they have made a mistake, "*Mon Dieu!*" they blow their brains out. But the dog is all right now. Do you not hear the change in his music, and see him break to the left to catch the wind? Do you not hear him answering Pierre Huber's old Swiss hound, who is giving mouth to the tune his master sings?

"The ants. The *Formica rufescens* are absolutely dependent on their slaves, which are *black*. The male and female masters do no work of any kind. The masters, though more energetic in capturing slaves, do nothing else. The slaves are employed as

servants, cooks, nurses and rearers of the young. The strong warrior ants live on a perfectly good understanding with the *blacks*, who do everything. These helots really love their masters; wait upon them; carefully tend their children, and gladly and cheerfully perform their tasks of servitude."

Wonderful workings of nature, that she should have evolved the Helot! One "who really loves his master, and who gladly and cheerfully performs his task of servitude." What a joy! What a triumph for the partizans of slavery! And what of ye, who with pointing finger exclaim, "Behold! there is a black spot on the face of nature. Come! let us wipe it out e'en in our brother's blood! But let us listen to some more of the music of Pierre Huber's old Swiss hound:

"The masters have no other occupation but war and kidnapping, or wander about lazily and bask in the sunshine at the door of their barracks. When these go upon their slave raids, they march in solid column, and halt before an ant-hill, inhabited by the *black* ant. A desperate struggle takes place. The *blacks* offer a stout resistence. The assailants capture and enter the city, and emerge from its gates, loaded with the young progeny. Their whole proceeding is an exact resemblance of a descent of slave-hunters on the coast of Africa. Arriving at the threshold of their own community, the already enslaved *blacks* welcome with visible joy, these children of their own race, in a foreign land."

Gentlemen, as far as we have gone on the hunt, there has been a great deal of exercising the reasoning faculties, and adapting them to special cases, which result in special actions being instituted. We think we shall catch that "Missing Link." The dogs you find are backing up each other. They have not lost the scent, but are keeping along the right track. They are down in the hollow. They are crossing the creek. They are up the bank and on the other side.

But, hello! what is the matter with them? They appear a little bothered. It might be, that this link is trying to play the coon dodge; taken the back track, and is making for the cocoanut trees, thinking to deceive the dogs by throwing them off on a monkey trail. But it is no use, they will not follow that trail. You will not catch these dogs, except Darwin's pointer, going after any hairy link with a tail and wagging ears.

Ah! Ah! We told you so. We knew it. The dogs have

struck the track again, and are making for Belt's tramway in Nicaragua. Belt's old dog knows all that ground. He knows what his master has seen, and what he means, when he says:

"In a tramway excavation in Nicaragua, I observed about a dozen scouts of the *eciton humata*, assembled together in consultation. One ant suddenly left the assembly and ran up a perpendicular side of the cutting. The example of this first ant was followed by several others, which ran after the first ant, and then returned. They then proceeded for a further distance along the track of the first ant. The object of this proceeding, was to make the track readily determined by the suceeding travellers; and the route of the first ant was followed by the others at a long distance apart. I removed a portion of the trail, when the ants appeared at fault, and occupied themselves in making detours until they again hit upon the interrupted track.

"On arriving at the top of the excavation, information was quickly communicated to those who were below, and the whole army rushed forward in obedience to the behests of the scouts. One ant got embedded in some clay with only the points of the antennæ protruding. On being discovered, and the efforts of one ant being inadequate to release his comrade in peril, others were duly informed of the fact, and they hurried to assist in releasing their less fortunate companion."

Listen now to Latreille's old French dog, who has taken up the cry, and is telling us what his master once did:

"To ascertain if the organs of smell were in the antennæ, I cut off these organs from several ants. The others observing the distress of their mutilated companions, stanched the wounds of the sufferers by an application of their mouths to the wounded surfaces. The ants *do exactly what we do*, but exercise their powers, and use them with *more gentleness and management than does man*."

* * * "The plan of the ant's nest or house, is an arrangement of flats or stories, communicated by passages. The King's and Queen's apartments, are at the extreme inner part of the building, and are guarded by soldiers. The communication to these apartments is by secret tunnels. No closer imitation of the ways of man can be found in the entire animal economy."

Gentlemen, it is getting late in the day, and these Naturalistic dogs must be fatigued. No wonder that they should be. They have had to travel the whole length of the organic chain, which is composed of millions of links, and required nature millions of years to forge. They have had to hunt over all the

fields of animated nature, and been obliged to examine every organism in the entire animal economy.

Yet, although the dogs have found many breaks; hunted up the cause of them, and repaired the chain, still, they have not yet caught the missing one. They have had several glimpses of it through the "Natural Selection" brush, and are getting wearied out investigating those everlasting false trails made by the monkey tribe. This tribe, from having got drunk on brandy and beer; making mud and platforms; covering themselves with leaves; throwing mats over their heads; yelling like beasts of prey; sitting and wearing off their tails, and then trying to walk on two legs, have fooled the wisest and best dogs in the pack. No wonder then, they are fagged out, and have become nauseated with the different odors of these anthropomorphous brutes. But they have become satisfied that they cannot find the link in anything with a tail; are now seeking the trail which leads to the head, and are waking up into new vigor.

Look! Do you not see them wagging their tails a little livelier? Do you not see their tongues and ears, and how they are getting their bellies on the ground? Can you not hear them snorting the dust out of their noses, and how quick and sharp their music is getting? Why, look there! They are heading for old Houzeau's farm. They must have had this spot in their minds all the time. Lord have mercy, how they jump! Jerusalem, how they make the welkin ring! Listen! They are telling us the news. Great Haeckel, Lamark, Darwin! they have found him. He is linked and hanging in that tree of Knowledge, whose sap is Reason; whose branches are Judgments; whose leaves and fruit are the evidences of its having used its sap in adapting it to these special purposes.

Yes, the dogs have found the link. They have stopped around that tree. They see old Houzeau coming, and are lying down satisfied. Houzeau is talking to them; telling them, that they are intelligent, naturalistic dogs. Dogs of proof, and well selected. Dogs of demonstration, who can chew up a theory, swallow a supposition, and never give up gorging on ifs, until they found out what he, Houzeau, has said is true, that:

"*Ants most nearly approach man in their arrangements and the general nature of their social existence and condition, and in the reasoning faculties, by adapting these faculties to special cases which result in special actions being instituted, and thus perform what we see involved in the process of the reasoning characteristics of man's mental powers, 'doing,' as Latreille says, 'exactly what we do.'*"

Who can that be, that has crossed the fields and stopped to talk to Houzeau? Why, it must be the great naturalist, Sir John Lubbock. Let us listen to what he is saying:

"The anthropid apes, no doubt, approach nearer to man in bodily structure than do other animals, but, when we consider the habits of the ants; their large communities and elaborate habitations; their roadways; their possessions of domestic animals, and, even in some cases, of slaves, it must be admitted, that they have a fair claim to rank *next to man in the scale of intelligence.*"

There, young gentlemen, is the "Missing Link." There is the microscopic man. There are the "reasoning faculties adapting themselves to special cases which result in special actions being instituted." There he is, perfect, whole and entire, in that which constitutes man, but done up in a small package.

Should we turn the Evolving telescope, and look through the other end, we could see this link evolving, transmuting, and modifying, on his way to increase of structure. Give nature time. She has put no such quality of brains in any other living creature, except man. She will develop and increase the structure of the ant, if she finds it necessary for the perfection of her works. The ant is not one of nature's crooked ways, but one of her small ways toward perfecting. Evolution has not ceased her work. Modifications are still taking place, and "Natural Selection" is, as Mr. Darwin says, "intently watching and will pick out with unerring skill, each improvement and preserve it."

After comparing the similarity of the actions of the ant with those of man, and proving, that these actions are performed, and the effects produced, come from the same cause, viz: reason or judgment, we will then show you, in what way the ant can, and may attain, to the statue of man. Now, note, How perfect is the comparison.

There are architects designing; carpenters and masons

"building houses in stories, supporting them by definite pillars and partitions, and connecting them with passages." There are the "apartments of the Kings and Queens, placed in the safest part of the building." There are the sentinels, placed outside, and a body-guard inside, to protect the Royal Family in case the Commune should rise for their liberty, or some "foreign foe" attack the palace. In case they should, there are the "secret tunnels" all ready, and "especially designed," for the Royal household "to escape." Then, there are the "porters, to keep the house clean, and open and close the doors morning and evening." There are the "cooks," getting the meals; "the nurses and rearers of the children," and, as Michelet says:

"Watching them with the greatest care for fear they should get into danger, and punishing them in case of disobedience."

These ants, possessing brains "even more marvelous than man," there they are, keeping no policemen outside their dwellings, resting against the fence, when taking a perpendicular nap, while the "hoodlums" "nip" the spittoons. There they are, a sensible people, allowing no lawyers to live among them, to keep the community quarreling, and in constant litigation. "After months of absence" in the war, "fighting *nearly-related* enemies," there they are, "recognizing each other" on their return; friends "running hurriedly," shaking hands, and with their antennæ, no doubt, asking: "How are you, old boy?"

There are the purveyors, going out into the country "collecting food," wheat, hogs, and cattle, for "the community." There are the "road-makers," engineers, "overseers, and workmen"—but no thieving contractors—"making tunnels under rivers." There is the bank caving in on one of the workmen, and his fellows, "running hurriedly," to dig the poor fellow out. Notwithstanding the ants have missed perfection a little by having doctors among them, still, there they are, doing what man does, putting on sticking-plaster to "stanch the blood of the wounded sufferer."

Gentlemen, we must not forget that Evolution, like every other hypothesis, is compelled to account for every existing fact which comes within the scope of the hypothesis, for every phenomenon which presents itself, and acts on our senses, through which only, can we perceive or know of its existence, also, if

one single fact is produced, which negatives an hypothesis, the hypothesis falls to the ground. It is worth nothing. So, should any one of the foregoing facts, in regard to the ant, negative the instinct hypothesis, then, Pierre Huber's "little dose of reason or judgment," comes in.

Let us see how it came about, that the ant and man only, became possessed of such similiar faculties. If the fundamental basis of Evolution be, that there was a time in the history of the world, when neither man nor the ant, possessed these doses of reason, then, let us ask, how large were these doses of reason, when man was not only potentially, but actually contained in the animalcule, lancelet, squirt, fish, saurien, and big hairy fellow, or even when he lived with the mammoth, hyena, and cave-bear?

Possessing, as he now does, such large doses of reason, the next question which arises is, how came he by them? Of course, the answer would be the same, as it would in regard to the ant, namely: By Evolution. But it may be said: "The actions of the ant are to be attributed to instinct only." Very well, but what is instinct? Who has ever been able to draw the line where instinct ceases, and reason commences? This question has so puzzled us Evolution philosophers, that Mr. Darwin gave it up, and says, "It is a difficulty." Mr. Wallace says:

"I decline to accept the theory of instinct in any case, where all other possible modes of explanation have not been exhausted. If instinct means anything, it means the capacity to perform some complex act without teaching or experience. It implies innate ideas of a very definite kind, and if established, would overthrow Mr. Mill's sensationalism, and all the modern philosophy of experience."

The difficulty of drawing this line between reason and instinct must be great, when Mr. Darwin even abandoned the effort and says:

"I will not attempt any definition of instinct. I have nothing to do with the origin of the mental powers any more than I have to do with that of life itself. It is a serious error to suppose, that what are usually called instincts, have been acquired by habit in one generation, and transmitted by inheritence. It can be clearly shown, that the most wonderful instincts with which

we are acquainted, namely: those of bees and *ants, could not possibly have been acquired from habit.*"

Then, how were they acquired? Let Mr. Darwin tell us. He says:

"By gradual steps. On the theory of Natural Selection; nature never takes a sudden leap, but advances by short and sure, though slow steps."

Very well then. As the ant is the only living thing, except man, which in so many ways adapts its reasoning faculties to special cases in attaining particular ends —thus judging of causes and effects; if the ant has not acquired its faculties with which it is enabled to perform complex actions from experience, habit, nor from heriditary transmission, how came it by the knowledge and ability to go engineering? As "nature never leaps," the ant could not, like Mr. Darwin's tumbling pigeon, have accidently tumbled to "running tunnels under rivers," for, before it could have tumbled to this sort of an undertaking, it must have tumbled to many other branches of knowledge. In its civil engineering, it would have had to calculate how deep to cut the tunnel, so as to keep out the water, and seen to it, that the workmen kept the line in the right direction.

We care not how slow the steps may have been, or how many million years it has taken Evolution to evolve the brain of anything, but no creature, not even man, ever tumbled accidently to cutting tunnels under rivers. Like the ant, should man have an object in view, and desires to get on the other side of a river, but finding no tree fallen across it, he would say, "Mr. River, if I cannot get over you, I can get under you." He would make the same engineering calculations as does the ant, and, in accomplishing the work, would, still like the ant, systematically divide up the labor; the workmen to do the work, while others gathered and supplied the food.

There can be no blind chance, experience, habit nor instinct in all this. And if, as Mr. Darwin says: "Natural Selection cannot possibly produce any modification in a species for the good of another species," we would ask: how is it that one species of ant, has modified into contented, willing hewers of wood and drawers of water for another species, and for a set of idle, good-for-nothing vagabonds, "who do nothing but walk about

lazyly and sun themselves in front of their barracks, or go out on slave-hunting expeditions?"

Let us carry the similarity a little further. There is the "army;" there is the "54-40 or fight"—and about a "boundary line" at that. There are the soldiers, going out in "regular bands"—"officered," as Michelet tells us, and "freely sacrificing their lives for the common weal." Then, a civil war, "fighting nearly-related enemies," or "foreign foes." In doing this, "scouts" are sent out ahead of the army, to spy out the best route; watch the enemy; to send back word if all was right, and then, the "army rushing forward in obedience to the behests of the scouts."

Should this not be sufficient to identify the "Missing Link," let us see how they manage affairs in the social state. "They keep milch-cows," and, as Pierre Huber says:

"Impark them on their favorite feeding ground, throwing up around their fields of pasture a fence of twigs and cylinders of earth, to which the ants repair at certain hours to milk their herds."

Whether or not the ants have so far evolved in their approach to man, as to sell milk to those whose cows may be dry, that is, in case they should have more than they need for their own use, or whether they carry on the dairy business, we have not been informed. But should some of these ants be engaged in this business, and have not a good well of water and a chalk-mill on their farm, then, they are not similar to man in this respect, and the exercise of their reasoning faculties has not resulted in proper special actions being instituted. For, if they sell pure milk, they are brutes, and must do so either by habit or instinct, because, no reasoning being, however small may be his dose of reason, would ever think of doing such a thing as this.

A being endowed with reason; moral perceptions; possessing a conscience; aware of future responsibility, would so conduct himself, as to escape future penalties. His sense of justice alone, would induce him to use his reason, education and ability to calculate and find the answer to so plain a proposition as:

If A has 2 gallons of pure milk, and B puts into it 1¾ gallons of pure water, and 1 pound of pure chalk, how much pure milk

will this make? Having ascertained the result, B will always provide and furnish such pure milk, and thus avoid breaking the moral law. Still, we are not satisfied upon the point, as to whether or not the ants sell milk. And some day we intend going out to the sand-hills; watch them milk their cows, and learn what they do with their extra milk; because, we are unable to think, that ants, being so human in every other respect, can possibly slip up on this, and be so notoriously inhuman, as to sell pure milk.

There are some other strong proofs of our finding the "Missing Link." There are the emigrants, getting ready, "pre-concerting a plan to migrate to a new abode," and, like some of our emigrants once did; crossing the plains to California, taking their slaves with them.

Another proof. There are the ants doing what man has been doing nearly since the world began—making slaves of each other. How similar are the actions! The slave trade. The slave-hunters on the coast of Africa, "making a descent upon the villages of the *blacks* and emerging from their habitations loaded with them." Then, the plantation and slave owners "The masters taking the greatest care of their slaves and being solicitous for their welfare." But man, more selfish than the ant, does this because the slave is worth money. Then the fact, that these "Helots really love their masters; wait upon them; carefully nursing and tending their children, and cheerfully performing their tasks of servitude." And more marvelous still, when the masters get a new supply, "the already enslaved blacks welcome the new slaves with visible joy—these children of their own race in a foreign land," even if they are "black spots on the face of nature."

This slave-holding sentiment possessed by the ant, and their putting it into practice, is such an astounding proof of the "Missing Link," that we ought to learn how the ant came to establish among them that "Institution," which, in these latter days, gave some people such a deal of trouble to abolish.

We all know from that "Ancient Fable" record, how slavery came to be established among men: by whom, and for what purpose, and, also, what penalties attached to those who should steal or interfere with the slaves of another. Therefore, it is im-

portant, that we should know how slavery came to be established among the ants. To learn this we must consult the record; at the same time, keeping in mind, that at one period of the world's history, there were no slave-holders among either men or ants.

Whether or not the record of the establishment of slavery among men be true, matters not, we do know the absolute truth of its origin among ants; because, Mr. Darwin supposes, and whenever Mr. Darwin supposes anything, we can rest assured as to the genuiness of the supposition, if we cannot of the existence of the fact he supposes, more particularly, should he "see no difficulty" in what he supposes to be true. Mr. Darwin says:

"Suppose some ants, not slave-makers, should collect the pupæ of other ants for food which soon became developed. The ants thus reared would follow their proper *instincts*, and do what work they could. If their presence proved useful to the species which had seized them—if it were found more *advantageous* to this species to capture slaves than to pro-create them—the habit of collecting pupæ originally for food, would by Natural Selection be rendered permanent, for the very *different purpose of raising slaves*. When the instinct was once acquired, I can see no difficulty in natural selection increasing and modifying the instinct—always supposing such modification to be of *use* to the species—until an ant was formed as abjectly dependent on its slaves, as is the *Formica rufencens*.

"The working ants are sterile, and incapable of propagating their kind. How the workers have been rendered sterile is a difficulty; but if such ants should have become *social*, and it were found *profitable* to the community, that a certain number should be annually born capable of work, but *incapable* of procreation, I see *no difficulty* in this being effected by Natural Selection; nor of the wonderful fact of two distinct, defined casts of workers existing together, both *widely differing* from each other, and *from their parents*. We can thus see how useful their production to a social community of ants would be, on the same principle, that the division of labor is useful to civilized man."

You observe, that Mr. Darwin attributes these habits of the ant to instinct, when he has already refused to define instinct, and says that "what are usually called instincts, could not possibly have been acquired from habit."

Gentlemen, we must again remind you, that the foundation of Mr. Darwin's theory is that of Descent; that Heredity, or

"like begets like, the offspring is like the parent," is a universal law in nature, still, should an exception occur, and an offspring, as we have already seen in the case of the ants, be produced unlike its parents, it must, or the theory be accounted for. This, in other cases, Mr. Darwin, does, by referring the phenomenon to the law of Reversion, viz:—that the offspring has leaped back to some ancient progenitor who possessed this unalikeness in a perfect state. While this accounts for the exception, it, at the same time, negatives the theory, that "like begets like, the offspring is like the parent." Still, without this absolute and inexorable law of Heredity in nature, Mr. Darwin's whole fabric would crumble into dust; for, without this law, one could give that which it had not to give. One could do that which is beyond its nature. We could gather figs from thistles, and grapes from thorns. Cause and Effect would be annihilated, and Blind chance rule the world.

When Mr. Darwin is proving the law of Heredity, he finds no difficulty, but when he comes to accounting for a species of ants, which are not only unlike their parents, but are utterly incapable of producing their like, he finds a difficulty, and overcomes it, by supposing these ants to be "social, capable of work, useful and profitable to other ants." Neither does Mr. Darwin find any difficulty in Natural Selection performing the still more wonderful feat resulting in the fact, of one species of ants collecting the pupæ—"which are the eggs of ants in the third stage of existence—of other ants for food," and upon their finding these eggs, when hatched, produced ants which made good slaves, that they should stop eating them, and gather them "for the very different purpose of raising slaves; finding it more advantageous to capture workers than to procreate them."

Should we analyze these quotations we have made from Mr. Darwin's works, neither shall we find any difficulty in Natural Selection effecting still more wonderful results. We shall find, that, if the eggs of *one* species of ant be left to *hatch* in the nest of their parents, they will produce ants *exactly like their parents*. But should these eggs be stolen and hatched in the nest of *another* species of ant, these same eggs will produce ants not only *unlike* their parents, but be utterly incapable of becoming parents. What a wonderful fact this is!

And further. When the ants which stole these eggs, found that they produced ants which were "useful and profitable" to them, that Natural Selection should step in, increase the stealing habit, until it became permanent, causing these thieving ants to become as abjectly dependent on the stolen property, "as they are now in the *Formica rufencens.*" Again we say: What a wonderful fact!

We have little faith in that ancient record as to the establishment of slavery among mankind, because we can prove from a later record, that man learned slave-hunting and slave-holding from the ant, we mean more particularly among us.

Some years ago, after man had discovered and emigrated to the New World, some of them found, or happened to think, that in their new habitat, it would be "useful and advantageous" to them if they had someone else to do the work. But, as they could not make slaves of each other, some of the "most courageous started out on a slave-hunting expedition," and following the example set by the ant, went after the *black* kind, for slaves, which they found "useful and profitable to the community." The consequence was, that these slave-holders, like the ants, became so idle and lazy, that "they would do no work of any kind," except in special cases. These cases are also like those of the ant, for Mr. Smith tells us, that:

"In England, the ants receive much less service from their slaves than they do in Switzerland; the difference merely depending upon the slaves being captured in greater numbers in one country than the other."

Now observe how exactly similar this is to what man has done and would do again under the same conditions. We all know that south of "Mason and Dixon's line," where preacher Congo was born, that, before the war, before John Brown had taken to marching, a man there who owned but few slaves, had to work; but after capturing, according to their mode, a sufficient number of slaves, he would do nothing, but read books, talk politics, drink punch, amuse himself each morning, in tying up his slaves with an ox-chain, and waling a yard or two of skin off their backs, while his wife larruped the cook, and his daughters scissored the wool off the house-servant. These facts are vouched for by the records of Faneuil Hall. These slave-

holders continued these habits, until at last, they became "permanent," and a planter was formed into such a *Formica rufencen* biped, that he "became absolutely *dependent on his slaves.*"

Mark the further similarity. Notwithstanding all the ox-chain, larruping and scissoring exercise of these slave-holders; when the masters of these slaves went off in "regular bands" to fight "nearly-related enemies," these "loving serfs" staid on the plantation; did "all the work; provided the food; opened and closed the doors morning and evening; cared for the women and children of their masters, and made no attempt at insurrection." And, notwithstanding the advice of John Brown, and the seductive pleadings of Faneuil Hall, they did not insurrect, worth a tinker's expletive.

This reminds us. During the war, while we were prisoner in the hands of the rebels, we overheard a conversation between two negroes. One said: "Well, Parker, wat's de news frum de war?" Parker said, "We reckon we's gitten de bes' er 'em, 'kaze, massa John, w'en he fotch 'long dat off'cer en dar, sed: 'We's a driv'n' 'em, we gib 'em anodder Bull run.' But w'atch you tink dat Yank off'cer tole' uz? He sed, dat 'ef dey wins de fight, dey's gwine ter free de folks.'" "Dey is?" says the other, "Wat! make uz all free-niggahs? Ef dey duz dat, den, we'd like ter kno' who's gwine ter do de work?"

Young gentlemen, although we have found an organism, a living thing; possessing like faculties to man; powers to reason; form judgments; carry them into execution by performing actions similar in all respects to man, but by different means, you may think, that to complete the chain, we must account for the difference in size, structure, and organs of this link. Very well; we will endeavor to do so, and our proofs will be stronger than those we have already presented. Had we been hunting, and trying to find this missing link in size of structure, we would have gone to the mouths of the Siberian rivers, and thawed out a mammoth.

Before entering on this subject of size and structure, we had better dispose of the extra limbs of the ant. The ant has six limbs, and Michelet says, that "the two forward ones are arms." This accounts for two of them. Of course, the hinder limbs, being the longest, are the legs. Now, let us see how Natural

Selection can, and, no doubt, will dispose of the two middle limbs. We must again remind you, that there was a time when organisms possessed no limbs whatsoever, but in their course of Evolution, some have developed a hundred limbs, and many, after developing limbs, have lost them. So let us see how both these effects have been brought about. Mr. Darwin says :

"When at a remote epoch the progenitors of man were in a transitional state, and were changing from the quadruped into the biped, Natural Selection would aid and effect the *increase* or *diminish* the use of different parts of the body ; some organs becoming wholly *suppressed.*" * * * "Living organisms, after developing organs which subsequently become *useless* to the organism, *ceases* to use them, and they become lost or lapse into a rudimentary condition ; like the *os coccyx* in the tail ; muscles in the ears with which to erect them, and the mammæ in men."

Thus the ant, being at present in a "transitional state," when the time arrives, and it finds that four limbs are not only sufficient for its needs, but a benefit to itself, will modify and suppress the two useless middle limbs, by ceasing to use them. Some ants have already found that wings are useless to them after getting married, that is, the most self-willed ones have done so ; but the man ant, although he keeps his wings, has not developed sufficient vitality to live after getting himself into such a scrape ; though it may be, that he "foresees the future," and asks himself the questions, "Is it better to be? Or, is it better not to be?" And answers the last question in the affirmative.

Mr. Darwin further tells us, that :

"Modifications take place very slowly. We are quite ignorant at how rapid a rate organisms, whether *high* or *low* in the scale, may be modified under favorable circumstances."

Consequently, the ant has not, as yet, had sufficient time, or has not met with "favorable circumstances," by which it could rid itself of its two superfluous limbs. The horse has got rid of his superfluous toes ; the female ant of her wings ; some oxen of their horns ; some monkeys, and all men of their tails, then, why should not the ant, when it so desires, get rid of its two superfluous limbs?

In regard to the size of structure. The reason, no doubt, why the ant has not attained a larger bulk, is owing to its having exercised its brain at the expense of its physique ; for Mr.

Darwin says: "As the mental powers develope, the brain becomes larger, often at the *expense of increase of structure.*" Mr. Wallace says: "The brain increases much faster than the body." This must be true. Witness the extraordinary development of the cerebral gangalia of the ant as compared with its bulk. See how the elephant has increased his body so much out of proportion to his brain. Had the ant paid more attention to its physique, and exercised itself like the elephant and giraffe, in trying to reach the more lofty foliage, or in pulling on the Natural Selection cord; provided, that it found this exercise "advantageous," there can be no valid reason assigned, why it should not have attained, if necessary, the enormous proportions of a mammoth even, seeing that they both started out in the race of life with the same proportion of bulk. That the ant could have done so, and Natural Selection would have aided it, is proven beyond a doubt by Mr. Darwin, who says:

"In North America, the black-bear was seen by Hearne swimming for hours with widely open mouth, thus catching, like a whale, insects in the water. If the supply of insects were constant, and no better adapted competitors did not already exist in the country, I see *no difficulty* in a race of bears being rendered by Natural Selection, more and more acquatic in their structure and habits, with larger and larger mouths, till a creature was produced as *monstrous* as a whale."

Notwithstanding all the abuse which has been heaped upon Mr. Darwin; all the arrows of ridicule which have been shot at him; all the torrents of burlesque that have been poured upon his devoted head, and all the theological torpedoes which have been exploded under him—of which he bitterly complains—there is not in all his voluminous collection of endless facts, with their proof, any one approaching this bear fact, in its appeal to the reasoning powers of mankind, unless it may be the fact, as in the case of the young cuckoos, who have enlarged their backs into humps for the purpose of enabling them to commit murder; also, acquired the instinct to commit the deed before their victims "had acquired much feeling."

Mr. Darwin does uot say that the young cuckoo acquired, "but they have the instinct." But they could not have the instinct unless it had been acquired, either by themselves, or by some ancient progenitor. These, even, could not have had

it before they were cuckoos, for, before they could become cuckoos, they would have to acquire the cuckoo organization, its habits and instincts. We are particular on this point, because our learned friend, Judge Caswell, contends, that "instincts are not acquired," thinking, we suppose, that one can get a thing without acquiring it. Therefore, those who criticise Mr. Darwin, and desire to do him justice, should state what he means, paying no attention to what he says.

Let us try to do Mr. Darwin justice. Natural Selection being based on suppositions, let us suppose, that at some remote epoch, some untold millions of ages ago, that some *one* ant had "first accidentally, and, then afterwards, occasionally, fallen into the habit" of humping itself when catching flies; straining itself, like the giraffe to reach its food, or swelling itself, like the pouter-pigeon does his œsaphagus, and by so doing, found, that it not only derived pleasure, but that an advantage accrued from these habits. "Then, surely," to quote Mr. Spencer, "this would be a physiological gain." And to again quote Mr. Darin. "By perseverance in the acquired habit, it would become permanent, and Natural Selection would increase it." In proof of this fact, as it existed in the mind of Mr. Darwin, we have but to take his own words; for, if we do not believe a man when he speaks, we are depriving him of the only means he has of conveying to others, the facts as they exist in his mind. We, therefore, should believe Mr. Darwin when he says, and emphasizes his words with some warmth, that:

"All members of the vertebrate kingdom, are derived from fish-like animals. The belief that animals so distinct as a monkey or elephant, and a humming bird, a snake, a frog, and fish, etc., could all have sprung from the same parents, will appear monstrous to those who have not attended to the recent progress of natural history."

Taking into consideration the theory of Heredity, that "like begets like, the offspring is like the parents," we see nothing monstrous in this, except, perhaps, it might be the elephant. The humming-bird is certainly not monstrous, unless we may be allowed to say, monstrously small, even if it did spring from the same parents. Should we see the offspring of a fish spring off from a frog, or the offspring of a frog spring off from a snake,

we see no valid reason, why a monkey, who might be looking at them, should think it monstrous, unless he had got drunk on brandy while attending the "recent progress of natural history." Neither do we see anything monstrous or unreasonable in a "black-bear becoming as monstrous as a whale." The great Michelet, even, is unable to see anything monstrous in any organism becoming a monster in size. And in regard to the ant, he can see a mystery only, in its possesing such a marvelous brain with such a diminitive body, and says:

"There is a mystery in the matter which we cannot at present explain, but which would probably be cleared up if we could arrive at a knowledge of the general history of the species; its changes and migrations. Who does not know that modifications are effected in animals, both internally and externally, in form and manners, by the displacement they undergo? Who, for example, would recognize the brother of our bull-dog—of the St. Bernard—of the giant dog of Persia, which could strangle lions—in that abortion, the Havana dog, so weak and frail, that, even in a torrid climate, Nature has clothed it with a thick fleece which conceals it, and converts it into an enigma? The animal, when transported, may become a *monster*.

"The ants also may have had their revolutions, their moral and physical changes. Some species may have advanced, others retrograded. There are in every tribe, ants of unequal size, the big warriors and the little industrials."

And, after describing their wonderful mental powers, and the astounding similarity of their actions to those of man, Michelet exclaims, "singular triumph of intelligence! Invincible power of genius!"

Gentlemen, at the commencement of our lectures, we stated: That from the first dawn of philosophy; from the time when the first two philosophers lived on this earth; from all the records of the past which the destroying hand of time has left us, up to the present moment, no two philosophers have ever agreed. Still, when we come to searching the records for the "Missing Link," we were rejoiced when we found, as we thought, that there was one question upon which, natural philosophers at any rate, agreed, and this is, as to what must constitute the material and its quality, out of which the "Missing Link" must be made. But, here even, we met with disappointment. The undying worm of contradiction had to gnaw into the vitals of the philosophical mind

of Prof. Haeckel. For, while admitting, nay, asserting, that the ant is an animal, highly civilized, whose highly developed institutions; whose civil, military and social arrangements, and whose virtues we must regard as instructive examples, yet, he denies our relationship; regrets the fact, and says: "Unfortunately we lose by this." Then, with that liberality of mind; that candor; that fear and doubt, as to the correctness of his own judgment, and that modesty with which he gives expression to his opinions, berates those who differ with him. So, in one of his amiable fits, he says:

"It cannot be doubted for a moment, that the structure of man is that of a vertebrate. I may now enunciate the proposition, that the entire vertebrate tribe, including man, has developed from the worm tribe. Those who regard the descent of Man from the animal kingdom, as a more or less degrading stigma, and are ashamed of it, may take such consolation as they can from the fact, that the greater part of the animal kingdom, is not akin to them. We have no relationship to the crab, spider or insects. Unfortunately we lose by this—a relationship which would otherwise connect us with the ants, bees and other virtuous members of the articulate class. Among these insects are many well known patterns of virtue. In the civil, military and social arrangement of the ants, we meet with highly developed institutions, which we may even yet regard as instructive examples. But, unfortunately, these highly civilized *animals* are *not* related to us."

This is rather unfortunate for us, but we must not feel that we are bastard orphans in the world. For, while we cannot trace our lineage to the spider or the crab, still, we can to two very ancient worms, who lived during primordial ages. We can trace our genealogy, on the female side, to a Squirt, and, on the male side, to a Lancelet, both of whom we may be proud, as the Squirt—not in the sense of an Irish landlord—was an ejecting tube; while the Lancelet, like many of his descendants, had no brains; and, notwithstanding this slight defect in our ancient male progenitor, he was compensated by being, as Prof. Haeckel tells us:

"About two inches long and pointed at both ends." Had an "oval mouth" and "breathed through a gill-pore," on the ventral side of which, he had a "ciliated groove," through which he could smell. In addition to a "white liver," he possessed a

"simple heart," which, being "spindle-shaped, alternated in opposite directions." He had "no trace of limbs," and, as "the organ of hearing was entirely wanting," was as deaf as a post. He was, also, no doubt, the progenitor of the Cyclops, as he had but "one eye," and "rudimentary" at that. It is not only fortunate, but important, in this year of our Lord, for us to know, that, as he was "slightly reddish," he was not the progenitor of preacher Congo. And, as by the law of Heredity, structures, organs and habits are transmitted, we are doubly fortunate in having an ancestor, who used to "digest his food at the posterior end."

So, when we take into consideration all these natural gifts possessed by the founder of *our* race, we think, that Prof. Haeckel is justified in saying—mark the italics—that:

"We must regard the Lancelet, or Amphixous, with special veneration, as that around which *alone*, of all extant animals, can enable us to form an approximate conception of our *earliest* Salurien vertebrate *ancestors*.

"This remark of mine has given great offense to some philosophers, and more particularly to unscientific theologians. It hurts the dignity of their humanity.

"But apart from all this, the Lancelet, [skull-less, brainless and memberless as it is,] deserves all respect as being of our flesh and blood. At any rate, the Lancelet has a better right to be an object of our profoundest admiration; and of our devoutest reverence, than has any one of that worthless rabble of so-called Saints."

Young gentlemen, we shall make no comment upon this dish of self-sufficiency and ill-humor, but in closing this subject say, that having found the only living thing which possesses the brain, the faculties the reason and the intelligence, which alone constitutes the link in the Evolutionistic chain, and connects these links with the golden-link, man, on the end of this chain, we claim to have found the "Missing Link."

Should there still remain a doubt in your minds in regard to the questions of structure, form and size, you have but to remember, that, on the theory of Evolution, there was a time when organisms were *not*. That when Nature tapped her organic drum, "Force made the molecules aggregate," and, like a skillful workman, made such combinations of these molecules, that, as "dust on the surface of our metallic planet, they shot

forth into living forms." That Man, Mammoth, and Ant, started out in the race of life as an animalcule, all equal in size, form and structure. That from this single form, Evolution and Natural Selection, working for cycles of ages, have, while building up, made many mistakes, and, in tearing down, made more; also, like unskilled workmen, have endeavored to hide these under Rudimentary putty and plaster, thinking, that, at last, they have succeeded in making all mankind believe that they have produced the great variety of structure, form and size of organisms.

But they are mistaken. They have not hidden their faults sufficiently to escape the prying eye of Mr. Darwin, who says: "Many contrivances in nature are far from perfect;" while Mr. Spencer, with a keener sight, and more self-confidence, says, that "a more satisfactory arrangement might have been adopted."

You have still further to remember, not only the necessity of giving nature time in which to do her work, but, that Evolution, as a part of nature, is still at work; while "Natural Selection is intently watching, picking out with unerring skill each improvement and preserving it;" at the same time, "rendering abortive each useless development." By keeping in your minds these "facts," then, like Mr. Darwin, you will find no difficulty on the question of size.

Therefore, we will repeat what we have already stated, that the "Missing Link" would have long since been found, had our modern natural philosophers, with "their more advanced intelligence" and advantages derived from their more faithful attendance upon "the recent progress of natural history," not been so blinded and so determined to find this link, only, in that miserable caricature of Man, the inevitable Monkey.

In closing our lectures, and again thanking you for your attention, before bidding you adieu for your vacation, we desire to say: That, should the Faculty of this college be satisfied with our teachings, and desire us to deliver the next course, we shall then invite you to accompany us on a journey through other paths; and, through other ways, seek out the road which leads to that Temple, within whose gates resides Eternal Truth; which, while holding in its hand a scroll, reads aloud, that all

may hear, the solution of that triune problem, What am I? Whence came I? Whither am I going?

A Parting Word.

Young gentlemen, when first we entered on our journey, we found, standing on the high-road, Dogmatism, with pointing finger, proclaiming aloud the only way by which to reach the temple of true philosophy. And, as we journeyed on, saw Agnosticism, crouching by the way-side, whispering in our ears: "Believe nothing but appearances." Not heeding these, but wrapping around us our mantles of expectation, pressed on, when the cold breath of Skepticism struck us, freezing the very marrow of our hopes, as in its bitter, biting blasts it howled: "Believe nothing."

Still journeying on, all along the route, among the many forms of life we met, found Man to be a thing apart; the prince of living things; the wonder and glory of the universe.

So, gentlemen, if, in our efforts to reach this temple of true philosophy, we have failed to discover the origin of this wonder, and have became satisfied to accept the philosophy of "our more advanced 19th century thinkers," who declare: That to attribute this wonder to the work of an Infinite Intelligence is "an impossible idea, not representable in thought." And who assert: That the universe is Self-existent. That it once consisted of a homogeneous mass of insentient matter. That once, man was diffused throughout this universe under the form of nebulæ, or that of a gaseous vapor; and, that by a Universal law of Evolution, passing through multitudinous phases, has, by insensible gradations, been produced from it, then, we say: If we accept this philosophy, we must be content, as from the premises, we are logically driven to the conclusion, that:

Man is nothing more than a molecular machine; a mass of matter; a phenomenon offered by a quantity of molecules which happen to be disposed in a certain way, subject to simple mechanical laws of motion. His mind, nothing but matter. His thoughts, feelings, and expressions, mere modifications of matter, consisting in a little greater or less subtility, in a more or less happy disposition of the atoms of this matter. And, when he

dies, falls into an abyss and is lost, like unto a drop of water, which falls into the bosom of the ocean.

This philosophy, some think a consoling one, and quaff it, as a draught, to drown a fear. For, while it strangles hope, it crushes out of human hearts, the consoling, cherished thought, that they, 'ere long, will meet again those loved ones who have earlier passed away; and to have kept on earth, a little longer, would, drop by drop, have shed their blood of life.

A philosophy, that pours no balm into the wounded heart, to soothe it in its agony, nor, when in the gloomy depths of its despair, sheds no ray of light to guide it, while silently it seeks that haven of resignation, where, in its tears, it cries, "Thy will be done."

A philosophy, that bids the base, coward, cruel heart rejoice, that, if it 'scapes its just deserts in this, will, in no other life, meet just retribution for its crimes.

A philosophy which, when life is in the fullness of its vigorous bloom, teaches the proud heart to think, within itself, as through the ages strides that universal monster, Death, that, in its arrogance, it can uplift itself, and to that monster call, Come! Thou minister of Fate. Come! seize me when thou wilt. I fear thee not. Come! Strike! and with thy heel of fate crush out this Form of Matter; for well I know there lives within it naught that shall hereafter know, that once it knew, what 'twas to love, to joy, to grieve.

Come! Thou laggard, Come! I taunt thee in thy speed! Aye! Hasten if thou can'st. Ha! ha! I know thou can'st not. Serenely I abide. Contented I await thy coming. For, full well I know, that, with all thy mighty power, thou can'st do no more than hurl me to oblivion; into the embrace of "Nirwana"—The Supreme end—Nonentity.

THE END.

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